

UNIVERSAL
LIBRARY

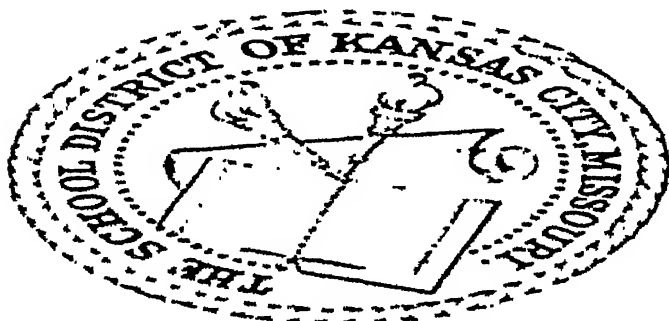


113 755

UNIVERSAL
LIBRARY

1915
9016.600 I42 186023

Kansas City Public Library



This Volume is for
REFERENCE USE ONLY

INDUSTRIAL ARTS INDEX

THIRD ANNUAL CUMULATION

SUBJECT INDEX TO A SELECTED LIST OF ENGINEERING
AND TRADE PERIODICALS FOR 1915

EDITED BY

MARION E. POTTER, LOUISE D. TEICH
AND HELEN M. CRAIG

THE H. W. WILSON COMPANY
WHITE PLAINS, N. Y. and NEW YORK CITY
1915

Industrial Arts Index

Vol. III

December, 1915

No. 5

Published February, April, June, October, December by
THE H. W. WILSON COMPANY

White Plains, N. Y. 39 Mamaroneck Ave.
New York City 501 Fifth Ave.

Full information in regard to subscription
price will be supplied on request.

With this issue the Industrial Arts Index completes its third year. Although it is the annual volume for 1915 it indexes most of the magazines for December 1914 and only a few for December 1915. The Proceedings of the American Gas Institute, Journal of the Boston Society of Civil Engineers, Journal of the Institution of Electrical Engineers and The University of Minnesota Studies in Engineering have been added this year.

There have been many suggestions for further additions to the list of periodicals indexed. Among these are the Bulletin of the American Railway Engineering Association; Canadian Mining Institute Quarterly Bulletin; Gas Age; Gas World (London); Journal of Electricity, Power and Gas; Journal of Gas Lighting (London); London Times (Engineering Supplement); Mining and Engineering World; Mining Press; Proceedings of the Electric Light Association; Printer's Ink; Printing Art; Bulletin of the Society of Automobile Engineers; Technology Monthly and Harvard Engineering Journal; American Lumberman.

Any of our subscribers who may be interested in having one or more of these periodicals indexed are asked to send us their votes. Any suggestions as to other additions or improvements will also be carefully considered.

There are several other periodicals which would be indexed in the Industrial Arts Index if the publishers were willing to furnish us copies for the purpose. It is for this reason that Ice and Refrigeration, Electric Journal, American Machinist, and Proceedings of the American Society of Civil Engineers are not included.

National Preparedness and Military Training

A new aid to the many who are discussing "preparedness" is the Abridged Debaters' Handbook on military training, just published by The H. W. Wilson Company (25c.). This covers the question of military training in schools and colleges, gives a list of organizations working for or against national defense, a brief, six pages of bibliography, and fifty-five pages of excerpts on both sides of the question. National Defense, one of the titles in the Debaters' Handbook series, price \$1.00, should be used to supplement the one on military training, if fuller information as to the present strength of our national defenses is desired.

A larger handbook on military training, in the regular series, will be issued as soon as the amount of valuable new material seems to warrant it. This handbook will include the question of compulsory military service.

Notes and Announcements

The Civil Engineers' Society of St. Paul began in November the publication of a monthly bulletin. This publication "is for the purpose of giving to the society an organ through which it may advocate a better understanding of the engineering profession in relation to the public welfare."

The Journal of the Association of Engineering Societies will be discontinued with the December, 1915, issue, owing to the disbanding of the Association on December 31, 1915. The Engineers' Club of St. Louis, the largest society in the Association and its active head for the past two years, will begin the publication of a bi-monthly journal to be known as the Journal of the Engineers' Club of St. Louis.

The Associated Technical Men, an association formed in 1914 for the purpose of furthering the interests of technical men, has commenced the publication of a monthly bul-

NOTES AND ANNOUNCEMENTS

letin to keep all members of the society informed as to its progress and to acquaint non-members with the work it is doing. A. M. Wolf, 180 North Dearborn Street, Chicago, is editor of the publication.

The first number of the Utilities Magazine was published in July, 1915. This is the official organ of the Utilities Bureau, which grew out of the conference of American mayors on public policies as to municipal utilities, held in Philadelphia, in November, 1914. In November, 1915, a Valuation Conference under the auspices of this bureau was held in Philadelphia, seven sessions being held. The proceedings of the conference will be made available in the January issue of the Utilities Magazine.

The Rhode Island Highway News, the first number of which was issued in September, 1915, is a publication of the State Board of Public Roads, and is similar to those which are issued by the highway authorities of several other states. It contains short articles on the maintenance of bituminous macadam and water bound macadam roads, a description of the business methods in the office of the board and discussions of various phases of construction and maintenance work.

There were no numbers of the Journal of the Institution of Electrical Engineers published between the issues of June 15 and Dec. 1.

The first issue of the new quarterly Bulletin of the National District Heating Association has made its appearance, being dated October, 1915. The bulletin is of standard magazine size. Under the committee heading, it is stated that the station operating committee will take up, among other things, the subjects of (1) oil as a fuel; (2) bleeder type of turbo-generator, and (3) operating data relative to a certain heating plant on which accurate information will be obtained by the committee through tests made by one of the member companies.

The Textile World Record, published by the Lord & Nagle Company, and the Textile Man-

ufacturers Journal, published by J. H. Bragdon & Company, have been consolidated to form a new publication known as the Textile World Journal. This is issued weekly, combining the news and market report features, which have been a specialty of the Textile Manufacturers Journal, and the technical machinery and special features of the Textile World Record. The Bragdon, Lord & Nagle Company, Incorporated, publish the Textile World Journal at their publication office, 377 Broadway, New York.

The Railway Electrical Engineer, which has been published by the Wray Publishing Company, at Chicago, has been bought by the Simmons-Boardman Publishing Company, the publisher of the Railway Age Gazette, and the Signal Engineer. Beginning with November it will be published by the Simmons-Boardman Publishing Company from its New York office. It will not be consolidated with any of the other periodicals of this company, but will be continued as a separate monthly publication.

The Colliery Engineer, formerly published by the International Textbook Company, at Scranton, Pennsylvania, has been purchased by the Hill Publishing Company, and was consolidated with the Coal Age in November. The latter periodical will be added to the list of those indexed in the Industrial Arts Index.

Among the magazines suggested for indexing in the Industrial Arts Index is the Mining and Engineering World, published in Chicago. The weekly issues of this magazine contain the titles of articles on mining, metallurgy and geology appearing in American and foreign periodicals. These are cumulated in semi-annual volumes, and published as the Mining World Index of Current Literature. Some four hundred periodicals are indexed, also publications of schools, societies, and government bureaus, and new books. The index has a classified arrangement, and, in many cases, a brief annotation follows the title. The seven-th volume, covering January to June, 1915, has recently been published.

List of Periodicals Indexed

- Am Chem Soc J**—Journal of the American Chemical Society. \$6. Charles L. Parsons, sec., Box 505, Washington, D. C.
- Am Eng**—American Engineer. See Ry Age (Mech ed).
- Am For**—American Forestry. \$3; single numbers 25c. American Forestry Assn., 1410 H St, N. W., Washington, D. C.
- Am Gas Inst Pro**—Proceedings of the American Gas Institute, ninth annual meeting, 1914. \$7.50 to libraries. American Gas Institute, 29 W 39th St, New York.
- Am Gas Light J**—American Gas Light Journal. \$3; single numbers 10c. American Gas Light Journal, 42 Pine St, New York.
- Am Ind**—American Industries. \$1; single numbers 10c. National Manufacturers Co., 30 Church St, New York.
- Am Inst Arch J**—Journal of the American Institute of Architects. \$5; single numbers 50c. American Institute of Architects, The Octagon, Washington, D. C.
- Am Inst E E Pro**—American Institute of Electrical Engineers. Proceedings. \$10; single numbers \$1. F. L. Hutchinson, sec., 33 W 39th St, New York.
- Am Inst Min E Bul**—Bulletin of the American Institute of Mining Engineers, subs., \$10; single numbers \$1; to members, public libraries, and educational institutions, \$5; single numbers 50c. B. Stoughton, sec., 29 W 39th St, New York.
- Am Soc Heat & V E**—Transactions of the American Society of Heating and Ventilating Engineers. American Society of Heating and Ventilating Engineers, 29 W 39th St, New York.
- Am Soc M E J**—Journal of the American Society of Mechanical Engineers. \$3; single numbers 35c. American Society of Mechanical Engineers, 29 W 39th St, New York.
- Am Water Works Assn J**—Journal of the American Water Works Association. American Water Works Assn., 2419 Greenmount Av, Baltimore, Md.
- Arch & Bldg**—Architecture and Building. \$2; single numbers 30c. William T. Comstock Co., 23 Warren St, New York.
- Arch Rec**—Architectural Record. \$3; single numbers 35c. Architectural Record Co., 115 W 40th St, New York.
- Assn Eng Soc J**—Journal of the Association of Engineering Societies. \$3; single numbers 30c. Association of Engineering Societies, J. W. Peters, sec., 3817 Olive St, St. Louis, Mo.
- Automobile**—Automobile. \$3; single numbers 10c. Glass Journal Co., 231 W 39th St, New York.
- Bldg Age**—Building Age. \$2; single numbers 30c. David Williams Co., 239 W 39th St, New York.
- Boston Soc C E J**—Journal of the Boston Society of Civil Engineers. \$4 (ten numbers); single numbers 50c. Boston Society of Civil Engineers, 715 Tremont Temple, Boston.
- Bricks**—Brickbuilder. \$5; single numbers 50c. Rogers & Manson Co., 85 Water St, Boston.
- Colliery**—Colliery Engineer. \$2; single numbers 25c. Hill Pub Co., 10th Av at 36th St, New York.
- Consolidated with Coal Age on Nov. 6.
- Concrete Cem**—Concrete-Cement Age. \$1.50; single numbers 15c. Concrete-Cement Age Pub. Co., 97 West Fort St, Detroit, Mich.
- Dom Eng**—Domestic Engineering. \$2; single numbers 10c. Domestic Engineering Co., 445-447 Plymouth Court, Chicago.
- Econ Geol**—Economic Geology. \$3; single numbers 50c. Economic Geology Pub. Co., 41 North Queen St, Lancaster, Pa.
- Elec Ry J**—Electric Railway Journal. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Elec R & W Elec'n**—Electrical Review and Western Electrician. \$3; single numbers 10c. Electrical Review Pub. Co., 608 S Dearborn St, Chicago.
- Elec W**—Electrical World. \$3 single numbers 10c. McGraw Pub Co., 239 W. 39th St, New York.
- Engineer**—Engineer. Thick paper ed \$2 6d; Canadian subs \$1 16s; thin paper ed \$1 16s; Canadian subs \$1 11s 6d. Engineer, 33 Norfolk St, Strand, London, W. C.
- Eng & Contr**—Engineering and Contracting. \$2. Myron C. Clark Pub. Co., 608 S Dearborn St, Chicago.
- Eng & Min J**—Engineering and Mining Journal. \$5; single numbers 15c. Hill Pub. Co., 10th Av at 36th St, New York.
- Eng M**—Engineering Magazine. \$3; single numbers 25c. Engineering Magazine Co., 140 Nassau St, New York.
- Eng N**—Engineering News. \$5; single numbers 15c. Hill Pub. Co., 10th Av at 36th St, New York.
- Eng Rec**—Engineering Record. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Eng Soc W Pa**—Proceedings of the Engineers' Society of Western Pennsylvania. \$5; single numbers 50c. Engineers' Society of Western Pennsylvania, 2511 Oliver Bldg, Pittsburgh, Pa.
- Foundry**—Foundry. \$1; single numbers 15c. Penton Pub. Co., Penton Bldg, Cleveland, O.
- Gen Elec R**—General Electric Review. \$2; single numbers 20c. General Electric Co., Schenectady, N. Y.
- Good Roads n s**—Good Roads new series. \$2; single numbers 5c except first numbers of each month 10c. E. L. Powers Co., 150 Nassau St, New York.
- Heat & Ven**—Heating and Ventilating Magazine. \$1; single numbers 10c. Heating & Ventilating Magazine Co., 1123 Broadway, New York.
- Horseless Age**—Horseless Age. \$2; single numbers 10c. Horseless Age Co., 440 4th Av, New York.
- Ill U Eng Exp Sta Bul**—Illinois University Engineering Experiment Station. Bulletin. Univ. of Ill., Urbana.
- Illum Engr**—Illuminating Engineer. 10s 6d; single numbers 1s. Illuminating Engineering Pub. Co., 32 Victoria St, London, S. W.
- Illum Eng Soc**—Transactions of the Illuminating Engineering Society. \$5; single numbers 75c. Illuminating Engineering Soc., 29 W 39th St, New York.
- Ind Eng**—Industrial Engineering and Engineering Digest. \$2; single numbers 20c. Technical Literature Co., 120 W 32d St, New York.
- Inland Ptr**—Inland Printer. \$2; single numbers 30c. Inland Printer Co., 632 Sherman St, Chicago.
- Inst E E J**—Journal of the Institution of Electrical Engineers. single numbers 3s 6d. 1s. & P. N. Spon, Ltd., 57 Haymarket, London, E. W.; Spon & Chamberlain, 123 Liberty St, New York.
- Int Marine Eng**—International Marine Engineering. \$2. Aldrich Pub. Co., 17 Battery Place, New York.
- Iron Age**—Iron Age. \$5; single numbers 20c. David Williams Co., 239 W 39th St, New York.
- Iron Tr R**—Iron Trade Review. \$4; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.

LIST OF PERIODICALS INDEXED

- J Account**—Journal of Accountancy. \$3; single numbers 30c. Ronald Press Co., 20 Vesey St, New York.
- J Fr Inst**—Journal of the Franklin Institute. \$5; single numbers 50c. Franklin Institute, Philadelphia.
- J Ind & Eng Chem**—Journal of Industrial and Engineering Chemistry. \$6. American Chemical Society, Easton, Pa.
- Locomotive**—Locomotive. 50c; single numbers gratis; recent bound volumes \$1. Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Mach**—Machinery. Engineering edition \$2; coated pa. \$2.50; single numbers 20c. Industrial Press, 140 Lafayette St, New York.
- Met & Chem Eng**—Metallurgical and Chemical Engineering. \$3; single numbers 25c. McGraw Pub. Co., 239 W 39th St, New York.
- Metal Ind n s**—Metal Industry new series. \$1; single numbers 10c. Metal Industry, 99 John St, New York.
- Metal Work**—Metal Worker, Plumber & Steam Fitter. \$2; single numbers 10c. David Williams Co., 239 W 39th St, New York.
- Minn U Bul**—University of Minnesota. Studies in engineering. Univ. of Minn., Minneapolis
- Munic Eng**—Municipal Engineering. \$2; single numbers 25c. Engineering Pub. Co., 702 Wabash Bldg, Indianapolis, Ind.
- Munic J**—Municipal Journal. \$3; single numbers 10c; special numbers 25c. Municipal Journal and Engineer, Inc., 59 Union Square, New York.
- Power**—Power. \$2; single numbers 5c. Hill Pub. Co., 10th Av at 36th St, New York.
- Ry Age**—Railway Age Gazette. \$5; single numbers 15c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.
- Ry Age (Mech ed)**—Railway Age Gazette, mechanical edition including the American Engineer. \$2; single numbers 20c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.
- Ry R**—Railway Review. \$1; single numbers 15c. Railway Review, 1407 Ellsworth Bldg, Chicago; 30 Church St, New York.
Formerly Railway and Engineering Review.
- Sch Mines Q**—School of Mines Quarterly. \$1.50; single numbers 50c. School of Mines Quarterly, Columbia University, New York.
- Sci Am**—Scientific American. \$3; single numbers 10c. Munn & Co., 361 Broadway, New York.
- Sci Am S**—Scientific American Supplement. \$5; single numbers 10c. Munn & Co., 361 Broadway, New York.
- Sibley J**—Sibley Journal of Engineering. \$2; single numbers 25c. Sibley College, Cornell Univ., Ithaca, N. Y.
- Stevens Ind**—Stevens Indicator. \$1.50; single numbers 50c. Stevens Institute of Technology, Hoboken, N. J.
- Textile World**—Textile World Journal. \$3 Braddon, Lord & Nagle Co., 377 Broadway, New York.
Formerly published as Textile World Record, monthly at \$2
- U S Agric Bul**—United States. Dept. of Agriculture. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
Contributions from the Bureau of Chemistry, Forest Service and Office of Public Roads are indexed.
- U S Bur For & Dom Com**—United States. Bureau of Foreign and Domestic Commerce. Special agents series. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- U S Bur Mines Bul**—United States. Bureau of Mines. Bulletin. Distributed free of charge. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Mines Circ**—United States. Bureau of Mines. Miners' circular. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Mines Tech Pa**—United States. Bureau of Mines. Technical paper. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Stand Bul**—United States. Bureau of Standards. Bulletin. Gratis to educational and scientific institutions and to government departments. U. S. Bureau of Standards, Washington, D. C.
Sold to individuals by the Superintendent of Documents. \$1; single numbers 25c.
- U S Bur Stand Circ**—United States. Bureau of Standards. Circular. U. S. Bureau of Standards, Washington, D. C.
- U S Bur Stand Tech Pa**—United States. Bureau of Standards. Technology paper. U. S. Bureau of Standards, Washington, D. C.
- U S Sp Cons Rep**—United States. Special consular reports. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- W Soc E J**—Journal of the Western Society of Engineers. \$3. Single numbers 50c. Western Society of Engineers, 1135 Monadnock Bldg, Chicago.
- Wis U Bul Eng S**—Bulletin of the University of Wisconsin, Engineering Section. Univ. of Wis., Madison.

Industrial Arts Index

A Cumulative Index to Engineering and Trade Periodicals

January—December, 1915

- Abattoirs.** See Slaughtering and slaughter houses
- Abbeys**
Ancient abbey of St. Etol. J. Alaux. II Am Inst Arch J 3:12-13 Ja '15
- Aberdeen, South Dakota**
Sewerage
Sewage disposal plant at Aberdeen, South Dakota; with discussion. W. G. Potter. II plans W Soc M J 19:788-805, pl 1-8 O '14; Same. Eng & Contr 43:37-8 Ja 13 '15; Same cond. Metal Work 84:214-17 Ag 13 '15
Water supply
Rectangular fire-service reservoir. W. G. Potter. II Eng Rec 71:260-1 E 27 '15
- Ablene, Kansas**
Politics and government
Results obtained at Abilene, in 16 months under commission-manager government. K. Middle. Eng & Contr 42:503-4 N 25 '14
- Ability**
See also Efficiency, Industrial; Leadership
Ability tests
Measuring human intelligence: standardized tests used by the Public health service. H. A. Knox. II Sci Am 112:52-3+ Ja 9 '15
Mental tests of dementia. B. Hart and C. Spearman. Sci Am 8 80:206-8 S 25 '15
New way of measuring mental ability. A. M. Jungmann. II diag Sci Am 8 80:140-1 Ag 28 '15
Selecting the right occupation. Eng N 74:321-2 Ag 12 '15
Teaching defective children. A. M. Jungmann. Sci Am 112:361 Ap 17 '15
- Ablain St. Nazaire, France**
Church of Ablain St. Nazaire. J. P. Alaux. II Am Inst Arch J 3:337-8 Ag '15
- Abrasive wheels.** See Grinding machines; Grinding wheels
- Abrasives**
Abrasive for grinding steel; patented by H. T. Kalmus. Met & Chem Eng 13:762-3 O 15 '15
Abrasive products at San Francisco fair. II Iron Tr R 67:487 S 9 '15
Abrasives; various kinds used in grinding and polishing. C. Hawke. Metal Ind n 13:101-2, 148-50 Mr-Apr '15
Carborundum products, their manufacture and uses as abrasives and refractories. C. B. Hawke. Iron Age 96:1121 N 11 '15
Grinding wheels for foundry use. C. F. Dietz. Iron Tr R 67:314-18+ Ag 12 '15
Grinding wheels; history and description of various abrasive compounds. W. C. Gold. Metal Ind n 13:450-2 N '15
Laps and lapping; abstracts. W. A. Knight and A. A. Gano. diag Am Soc M 16 J 37: 461-6 Ag '15; Iron Tr R 67:24-6 Ji 1 '15; Mach 21:976-8 Ag '15; Discussion. Am Soc M 16 J 37:456-8 Ag '15
See also Grinding and polishing
- Absolute zero.** See Temperature, Low
- Absorbent cotton.** See Cotton, Absorbent
- Absorption**
Absorption of glucose by bone-black. H. A. Morton. Am Chem Soc J 36:1832-8 S '14
Reagents for use in gas analysis; alkaline pyrogallol. R. P. Anderson. diag J Ind & Eng Chem 7:587-96 Ji '15
Specific absorption of reagents for gas analysis. R. P. Anderson. J Ind & Eng Chem 7: 587 Ji '15
- Academic freedom**
Common sense regarding academic freedom. Eng Rec 72:35 Ji 10 '15
Common sense regarding academic freedom. J. W. Alvord. Eng Rec 72:176 Ag 7 '15
- Accelerometer**
Measuring shocks of vehicles and vibrations of buildings; a means for investigating important traffic problems. A. Boyer-Quillon. II diag Sci Am 8 78:364-5 D 5 '14
- Accidents**
See also Aeronautics—Accidents; Automobile accidents; Collisions at sea; Railroads—Accidents; Shipwrecks; Street accidents; Subways—Accidents
Accidents, Industrial
Conditions of industrial accidents. Sci Am 8 79:179 Mr 20 '15
Crane and chain accidents; abstract. Ind Eng 14:411-12 O '14
Explosions and accidents. Engineer 118:531-2 D 4 '14
Industrial accidents in Massachusetts. Sci Am 112:433 My 8 '15
Intoxication, a cause of accidents. T. D. West. II Iron Tr R 66:713-16 Ap 8 '15; Same. Foundry 43:267-70 Ji '15
Prevention of accidents in cotton mills. J. Calder. Textile World 49:622-4 S '15
Prevention of infection. T. Darlington. Iron Tr R 66:770 Ap 15 '15
Relation between accidents and inadequate lighting. Illum Eng 8:383-5 S '15
Safety in stone quarrying; typical accidents in quarries. O. Bowles. U S Bur Mines Tech Pa 11:43-6 '15
See also Boiler accidents; Boiler explosions; Coal mines and mining—Accidents and explosions; Coke ovens—Accidents; Cranes, derricks, etc.—Accidents; Employers' liability; Explosions; First aid in illness and injury; Foundries—Accidents; Gas manufacture and works—Accidents; Metallurgical plants—Accidents; Mine accidents; Safety devices and measures; Workmen's compensation
- Accountants**
Contractual relations between clients and accountants. H. M. Temple. J Account 20: 261-6 O '15
Relations of accountants and engineers in special investigations of various kinds of plants. H. C. Hopson. J Account 20:397-9 N '15
- Accountants, Public**
Accountants and the public. H. D. Love. J Account 18:480-92 D '14
Accounting profession in the United States. J. B. Masters. J Account 20:349-55 N '15

Accountants, Public—Continued

- Accounting profession; its demands and its future. *Id.* W. Sells. *J Account* 20:325-33 N '15
- Certified public accountants. W. H. Rand. *J Account* 19:14-20 Ja '15
- Competitive bidding. *J Account* 20:81-90, 133-6, 385-6 Ag, N '15
- National aspects of public accountancy. *J Account* 19:46-50 Ja '15
- Phases of professional ethics. J. F. Forbes. *J Account* 20:271-5 O '15
- Will we co-operate or must we incorporate? W. D. Whitecomb. *J Account* 20:376-82 O '15
- See also* Accounting; American association of public accountants

Advertising

- Educating the public. *J Account* 19:359-62 My '15

Examinations

- C. P. A. examinations. S. Walton. *J Account* 19:230-42 Mr '15
- How to pass the C. P. A. examinations. J. Hunter. *J Account* 20:34-7 Ji '15
- Ohio state board of accountancy examination. *J Account* 19:65-71 Ja '15

Law

- Arkansas C. P. A. law. *J Account* 19:300-3 Ap '15
- Indiana C. P. A. law. *J Account* 19:304-5 Ap '15
- Iowa C. P. A. law. *J Account* 19:369-72 My '15
- Kansas C. P. A. law. *J Account* 19:372-4 My '15
- South Carolina C. P. A. law. *J Account* 19:308-9 Ap '15
- Texas C. P. A. law. *J Account* 19:376-80 My '15

Accounting

- Accountant's report from the standpoint of the several parties at interest. J. S. M. Goodson. *J Account* 20:91-103 Ag '15
- Accounting for cement packages. G. Wilson. *J Account* 19:198-205 Mr '15
- Accounting for depreciation. R. Sealy. *Elec W* 65:460-1 F 20 '15
- Accounting system for contractors. *Elec R & W Elec'n* 66:152 Ja 23 '15
- Consolidation of balance sheets in holding company accounting. A. W. Wright. *J Account* 19:21-33 Ja '15
- Cooperative organization business methods. W. H. Kerr and G. A. Nabholz. *Biblog* 1' 8 Agric Bul 178:1-24 '15
- Credits from the viewpoint of a certified public accountant. F. H. Hurdman. *J Account* 18:455-54 D '14
- Department store accounts. H. C. Mages. *J Account* 19:268-91 Ap '15
- Depreciation accounts. W. H. Lawton. *Elec W* 65:1678-9 Ja 26 '15
- Depreciation problems. H. Erickson. *Am Gas Ind* 170 Sept 2, 1932-1938; Discussion, p: pt 2, 1938-83 '14
- Federal trade commission and accounting. *J Account* 20:129-33 Ag '15
- Importance of accrued accounts. J. F. Forbes. *Elec Ry J* 46:809-10 O 18 '15
- Inter-department profits. S. Walton. *J Account* 19:164-8 F '15
- Library for accounting employees. *Elec Ry J* 46:852 N 8 '15
- Overhauling capital stock. *J Account* 19:62-5 Ja '15
- Return of annual net income by corporations. W. F. Weiss. *J Account* 19:260-7 Ap '15
- Scams of accountancy. *J Account* 19:456-8 Ja '15
- Secret reserves. J. P. Joplin. *J Account* 18:407-17 D '14
- Sub-division, saving and safety. *Horseless Age* 84:869-70 D 16 '14

See also Accountants, Public; Auditing; Banks and banking—Accounting; Building—Accounting; Business; Card system in business; Cost accounting; Depreciation; Electric railroads—Accounting; Financial statements; Foundry accounting; Gas companies—Accounting; Highway accounting; Interest; Inventories; Mine accounting; Municipal accounting; Partnership; Plumbing trade—Accounting; Power plants—Accounting; Public service corporations—Ac-

counting; Railroads—Accounting; School accounting; Waterworks—Accounting

Societies

- Accountancy in Canada. G. Edwards. *J Account* 20:334-48 N '15
- Accounting profession in the United States. J. B. Masters. *J Account* 20:350-2 N '15

Terminology

- Words often used incorrectly. S. Walton. *J Account* 20:385-6 N '15

Canada

- Accountancy in Canada. G. Edwards. *J Account* 20:334-48 N '15

China

- Accountant in the Orient. E. S. Fletcher. *J Account* 20:356-60 N '15

Accumulators. *See* Storage batteries

Accumulators, Steam. *See* Steam accumulators

Acetate of lime. *See* Lime acetate

Acetic acid

- Indicator in pyrolytic acid. J. M. Jollin. *J Ind & Eng Chem* 7:586 Ji '15
- Production of acetone from pyrolytic acid. M. Barrin. *Il J Ind & Eng Chem* 7:927-9 N '15

Acetic anhydride

- Action of acetic anhydride on some benzylic anhydride acids. J. H. Kelsey and C. E. Too. *Am Chem Soc J* 37:582-6 Mr '15

Acetolysis

- Acetolysis of carbohydrates. S. Born and J. M. Nelson. *Am Chem Soc J* 37:1763-9 Ji '15

Acetone

- Production of acetone from pyrolytic acid. M. Barrin. *Il J Ind & Eng Chem* 7:927-9 N '15

Acetylacetone-thiourea

- Constitution of acetylacetone-thiourea. W. J. Hale and A. G. Williams. *Am Chem Soc J* 37:694-699 Mr '15

Acetylene

- Acetylene-oil-gas generating outfit. *Il Mach* 21:513-14 F '15
- Action of acetylene on metals. A. C. Morison. *Sci Am* 113:487 D 4 '15
- Dissolved and self-generated acetylene. M. K. Dunham. *Iron Age* 96:343 Ag 12 '15
- Effect of acetylene on metals. *Sci Am* 113:408 N 6 '15
- Explosibility of acetylene. G. A. Burrell and G. H. Chaffell. *1' 8 Bur Mines Tech* 19 112:112 '15
- Illumination of the substation house, the use of electricity or acetylene. H. L. All. *Eng* 113:251-2 O '15
- Oxy-acetylene welding and cutting equipment; acetylene generators. R. W. Miller. *Eng* March 23:92-4 O '15
- Properties of acetylene. C. H. Chaffell. *Eng* 113:251-2 O '15
- Vapor pressures of acetylene, ammonia and butane at temperatures below their normal boiling points. G. A. Burrell and I. W. Robertson. *Am Chem Soc J* 37:152-6 N '15
- Why acetylene in the combustion gas used for autogenous welding. M. K. Dunham. *Mach* 21:1017-18 Ag '15

See also Oxyacetylene flame

Acetylene. Substitutes for

- New competitor of acetylene. J. P. Springer. *Mach* 21:502 Ji '15
- Possible substitute for acetylene in welding and cutting, by product of natural gas gasoline. J. P. Springer. *Ry Age* (Mach ed) 89:529-30 O '15

Acetylene burners

- New standard light source. L. A. Jones. *Am Gas Light J* 101:251-2 O 19 '14; *Same Illus Eng Soc* 9:716-27; Discussion, p 728-33 in 8 '14

Acetylene flame. *See* Oxyacetylene flame

Acheson, Edward Goodrich

- Alken, coke, mud and salt; career of E. G. Acheson and invention of carborundum. C. F. Williams. *Iron Tr* 11:58:487-8 Mr 4 '15

- Acid fumes**
Removing acid fumes by blower system method. W. E. Piper. *diag Metal Work* 84: 682-3 N 26 '15
- Acidimetry.** See Volumetric analysis
- Acidity**
Acidity and ash of vanilla extract. A. L. Winton, A. R. Albright and E. H. Berry. *J Ind & Eng Chem* 7:516-19 Ja '15
Rate of reduction of acidity of descending waters by certain ore and gangue minerals and its bearing upon secondary sulphide enrichment. G. S. Nishihara. *II Econ Geol* 9: 743-57 D '14
- Acids**
Influence of temperature in acid catalysis. H. S. Taylor. *Am Chem Soc J* 37:551-7 Mr '15
See also names of acids, e. g. Nitric acid, Sulphuric acid
- Acids, Fatty**
Absorption and the surface tension of aqueous solution of homologous fatty acids and alcohols. M. Neidle. *Am Chem Soc J* 37: 513-15 Mr '15
Action of finely divided silver on α -bromo- and α -iodopalmic acids: synthesis of two isomeric ditetradecylsuccinic acids. D. B. Jones. *Am Chem Soc J* 37:586-94 Mr '15
Determination of the total fatty acids and other ether-soluble constituents of feed-stuffs. J. B. Luther. *J Ind & Eng Chem* 7:213-20 Mr '15
Effect of free fatty acids upon the flash and fire points of animal fats and oils. A. Lowenstein and J. J. Vollertsen. *J Ind & Eng Chem* 7:850 O '15
Influence of hydroxy acids and lactones upon determination of the chemical constants of fatty acids. C. A. Browne. *J Ind & Eng Chem* 7:30-4 Ja '15
- Acids, Organic**
Addition compounds of organic acids in pairs. J. Kendall. *Am Chem Soc J* 36:1722-34 Ag '14
Preliminary study of the conductivity of certain organic acids in absolute ethyl alcohol at 15°, 25° and 35°. R. P. Wightman, J. B. Wiesel and H. C. Jones. *diag Am Chem Soc J* 36:2243-59 N '14
- Acorus calamus, L.**
Chemical and physical properties of oils distilled from the various parts of the plant *acorus calamus, L.* (G. A. Russell. *Am Chem Soc J* 37:2387-94 O '15
- Acoustics, Architectural**
Acoustics of auditoriums. T. E. Phillips. *Sci Am* 112:389 Mr 27 '15
Acoustics of auditoriums; investigation of the acoustical properties of the auditorium at the University of Illinois. F. R. Watson. *ibidlog II III II Engng Expt Sta Bul* 73:1-32 '14; *Suno. Sci Am* 8 78:358-9, 380-3 D 5-12 '14
Acoustics of auditoriums; investigation of the acoustical properties of the armory at the University of Illinois. F. R. Watson. *II Bricks* 24:257-8 O '15
- Architectural acoustics.** W. C. Sabine. *II J Fr Inst* 179:1-20 Ja '15
- Insulation of sound.** W. C. Sabine. *diag Bricks* 24:31-6 F '15
See also Architecture
- Acridine**
Salts of acridine, pyridine and quholine. L. H. Cono. *Am Chem Soc J* 36:2101-10 O '14
- Acrolein**
Preparation of acrolein. K. J. Witzmann. *diag Am Chem Soc J* 36:1766-70 Ag '14
- Actinometer**
Features of photo-chemistry. H. H. Mellenry. *Sci Am* 8 79:27 Ja 9 '15
- Activated sludge.** See Sewage aeration
- Addicks, Lawrence, 1878-**
Sketch. *por Engng M* 50:206 N '15
- Adding machines.** See Calculating machines
- Addition compounds**
Addition compounds of aldehydes and ketones with organic acids. J. Kendall and W. A. Gibbons. *Am Chem Soc J* 37:149-62 Ja '15
- Addition compounds of organic substances with sulfuric acid.** J. Kendall and C. D. Carpenter. *Am Chem Soc J* 36:2498-517 D '14
- Triphenylmethyl; the additive compounds of triphenylmethyl and some saturated hydrocarbons.** M. Gomberg and C. S. Schoepfle. *Am Chem Soc J* 37:2569-74 N '15
- Adhesives**
See also Glue
- Adjustable wedge stop in jig and fixture design.** R. E. McCoy. *diag Mach* 21:895-9 J1 '15
- Adrenal gland**
Therapeutic uses of preparations of the ductless glands. R. G. Torrey. *Sci Am S* 80:122 Ag 21 '15
- Adsorption**
Neutralization of adsorbed ions. W. D. Bancroft. *Met & Chem Eng* 13:318-19 My '15
- Advertisements**
Advantages of hand-lettering. A. G. Brenton. *Inland Ptr* 55:753-6 S '15
Advertisement-writer runs wild. J. H. Clayton. *Inland Ptr* 55:797-8 S '15
Advertising for printers. J. L. Frazier. *Inland Ptr* 54:613-16 Ja '15
Mechanical make-up of a circular. *Horseless Age* 35:331-2 Mr 10 '15
Preparing copy for circulars. *Horseless Age* 35:298-9 Mr 3 '15
Printers' blotters. *Inland Ptr* 55:784a-784h S '15
Review of newspapers and advertisements. J. L. Frazier. See monthly numbers of Inland printer
Service to the advertiser. B. O. Brown. *Inland Ptr* 55:329-32 D '15
Try-outs in sales-making printing. J. H. Clayton. *Inland Ptr* 55:693-6 Ag '15
Word and the printer. J. H. Clayton. See monthly numbers of Inland printer
See also Advertising
- Advertising**
Advertising and selling. T. M. Ambler. *Am Gas Light J* 103:60-1 J1 26 '15
Advertising and selling methods for concrete drain tile manufacturers. J. J. Commons. *Concrete Cem* 7:27-8 J1 '15
Advertising car in Boston. *II Elec Rty J* 46: 149 J1 24 '15
Advertising service of the weekly. *Inland Ptr* 55:476-7 J1 '15
Boosting the advertising patronage in a local paper. C. L. Chamberlin. *Inland Ptr* 55:761-5 S '15
Business methods for the plumber and fitter. W. A. Fink. *Dom Eng* 69:331-2; 70:42-3, 103, 369; 71:34-5, 101-2 D 12 '14, Ja 9, 23, Mr 20, Ap 10, 24 '15
Conflict between news and advertising. J. C. Morrison. *Inland Ptr* 54:681-4 F '15
Indirect advertising by the Frank H. Stewart electric co., Philadelphia. *II Elec W* 65:865 Ap 3 '15
Manufacturers and aggressive sales seekers. *II Metal Work* 83:14-25 Ja 1 '15
Printed matter distribution. C. Fried. *Inland Ptr* 54:350-1 D '14
Supervision of postage stamps. *Horseless Age* 35:262 F 24 '15
Unconscious humor in advertising. A. C. Woodbury. *Horseless Age* 35:479-80 Ap 7 '15
Under-advertising of the steel business. G. H. Jones. *Engng M* 50:357-63 I '15; *Suno cond. Iron Age* 96:1025-7 O 28 '15
Using newspapers to build business. *Metal Work* 83:61-5 Ja 1 '15
Value of advertising. A. Williams. *II Elec W* 65:1001-2 Ap 17 '15
See also Advertisements; Business; Catalogs; Electric service companies; Advertising; Electric signs; Posters; Sales letters; Salesmen and salesmanship; Show windows
- Rates**
Chaos of legal rates. J. C. Morrison. *Inland Ptr* 55:385-6 Jc '15
Ideal rate-card. J. C. Morrison. *Inland Ptr* 54: 401-3 I '14
Legal advertising and legal rates. J. C. Morrison. *Inland Ptr* 55:639-41, 683-8, 809-10 J1-2 '15

Advertising clubs of the world, Associated. See Associated advertising clubs of the world

Aeration of sewage. See Sewage aeration

Aeration of water. See Water aeration

Aerial photography. See Photography, Aerial

Aerial tramways. See Cableways

Aerial warfare. See Aeronautics, Military; European war--Aerial operations

Aero-electric plant. See Electric plants

Aero pulverizer

Economy of powdered fuel. *Il Eng M 48:sup4-6* Mr '15

Aerodynamic laboratories

European aeronautical laboratories; their organization, equipment and methods of investigation. A. F. Zahm. *Il Sci Am 8 79: 328-30, 340-2* My 22-23 '15

New aerodynamical researches. G. Eiffel. *Il Sci Am 8 80:260-1* () 23 '15

Scientific aeronautic research; the new aerodynamic laboratory of the Massachusetts Institute of technology. J. C. Hunsaker. *Il Sci Am 8 79:364-5* Jan 5 '15

Aerolites. See Meteorites

Aeronautics

Aeronautics in 1914. Engineer 119:6-8 Jan 1 '15; Excerpt. *Sci Am 8 79:114-15* P 20 '15

New aerodynamical researches. G. Eiffel. *Il Sci Am 8 80:260-1* () 23 '15

Review of the year 1914: aeronautics. *Sci Am 112:7* Jan 2 '15

Scientific aeronautic research; the new aerodynamic laboratory of the Massachusetts Institute of technology. J. C. Hunsaker. *Il Sci Am 8 79:364-5* Jan 5 '15

Using air for fuel. R. H. Upson. *Sci Am 8 80:142* Apr 24 '15

See also Aerodynamic laboratories; Aeroplane motors; Aeroplanes; Balloons and airships; Flyin' boats; Hydroplanes

Accidents

Another aviator perishes; Lincoln Beachey. *Sci Am 112:288* Mr 27 '15

How ident. Garther perished. G. P. Scriven. *Sci Am 112:217* Mr 6 '15

Signals

Communicating with aircraft. *Sci Am 8 80: 355* () 4 '15

Signaling apparatus used by airships. *Il Sci Am 113:265* M 26 '15

Aeronautics, Military

Aerial range-finding with electrical currents. *Il Sci Am 113:377* () 30 '15

Aerial scouting. H. Hammerman-Phillips. *Eng M 60:101-3* () 15

Aerial warfare and the weather. map. *Sci Am 8 80:259* () 23 '15

Aeronautic lessons of the European war. C. Dienstbach. *Il Sci Am 112:627* Jan 28 '15

Aeronautics in 1914. Engineer 119:7-8 Jan 1 '15; Excerpt. *Sci Am 8 79:114* P 20 '15

Aeroplane darts and fire darts. *Il Sci Am 8 79:124* P 20 '15

Aircraft artillery and bomb-dropping. C. Dienstbach. *Il Sci Am 112:126* P 6 '15

Aloud in the field. *Il Sci Am 8 79:120* Mr 27 '15

American aeroplanes for warfare. O. A. Dickerson. *Il Eng M 49:641-61* Apr '15

Captive balloons on the French front. N. Trunlow. *Sci Am 113:181* Apr 24 '15

Communicating with aircraft. *Sci Am 8 80: 355* () 4 '15

European war from an engineer's standpoint. J. B. C. Kershaw. *Il diggs Eng M 48:498-507* Jan '15

Flying machines of the warring powers. J. J. Ide. *diggs Sci Am 112:225-74* Mr 6 '15

Government's competition for a naval dirigible. C. Dienstbach. *Sci Am 112:405* May 1 '15

Guns and the aeroplane. R. Young. *Il Sci Am 8 80:276* () 30 '15

Gyroscopes. C. Dienstbach. *Il Sci Am 113: 368* () 23 '15

How the war has modified the aeroplanes. L. d'Orsy. *Il diggs Sci Am 112:196-7* M 4 '15

In flight over the enemy. *Sci Am 111:481* D 5 '14

Mechanical aids for air scouts. *Il Sci Am 112:175* P 20 '15

Military value of airships. *Sci Am 112:391* Jan 30 '15

Our first naval dirigible. C. Dienstbach. *Il Sci Am 113:44* Jan 10 '15

Recent progress in military aeronautics. S. Teber. *J Fr Int 180:131* 48 () '15

Shells for destroying airships. *Il Sci Am 112: 161* P 13 '15

Signaling apparatus used by airships. *Il Sci Am 113:265* M 25 '15

Steel darts. *Sci Am 112:156* P 13 '15

Torpedo attack from the air. *Sci Am 111:523* D 26 '14

Use of balloons during the siege of Paris, 1870-1; table and charts showing number of ascensions and results. *Sci Am 8 80:223* () 9 '15

War experience of an air scout. F. C. Hild. *Il Sci Am 111:520* (); 112:20 (); 51 (); D 26 '14; Jan 9 '15

Zeppelin. *Sci Am 113:8* Jan 3 '15

Zeppelin and aeroplane raid. Engineer 170: 256-6 M 17 '15

See also European war--Aerial operations; Military reconnaissance

Aeronauts. See Aviators

Aeroplane factories

Where wings are made for fighting men. F. Koppelshofer. *Il Sci Am 113:204* M 8 '15

Aeroplane motors

Aeroplane engines; regulated and details of design. N. Macdonell. *Il Sci Am 113:250* () 16 '15

Big eight for aeroplanes. *Il Automobile 32: 469* Mr 11 '15

Dual aeromautical motor. *diggs Engineer 118: 132* Jan 31 '14; Same. *Sci Am 8 78:34* D 19 '14

Dual engine aeroplanes. *Sci Am 111:401* D 5 '14

French plants make V motors. W. F. Hoadley. *Il Automobile 31:729* Jan 11 '15

History of the twelve cylinder motor. E. W. Walford. *Il Automobile 32:500* I Mr 16 '15

Progress in the construction of aeroplanes. N. Macdonell. *Il The class Age 50:501* Jan 16 '15

Romull aviation twelve possibly for cars. *Automobile 31:54* Jan 11 '15

Twin six engines for aeroplanes. F. Koppelshofer. *Il Sci Am 113:171* M 13 '15

Aeroplane stability and stabilizers

Gyroscopes. C. Dienstbach. *Il Sci Am 113: 368* () 23 '15

Aeroplanes

Aeronautical timber. abstract. J. J. Heron. *Am Soc M 17:3* 37 Jan 1 '15

Aeroplanes in 1914. Engineer 119:6-7 Jan 1 '15; Excerpt. *Sci Am 8 79:114* P 20 '15

Alcock aeroplanes. *Il Sci Am 112:281* Apr 24 '15

American aeroplanes for warfare. O. A. Dickerson. *Il Eng M 49:641* Apr '15

Evolution of the British (air); how a new type was developed into an aeroplane. *diggs Sci Am 8 79:241* M 1 '15

Flying machines of the warring powers. J. J. Ide. *diggs Sci Am 112:226* 71 Mr 6 '15

How the war has modified the aeroplanes. L. d'Orsy. *Il diggs Sci Am 112:196* 70 M 4 '15

Hulls for aeroplanes; abstract. H. C. Richardson. *diggs Am Soc M 15:3* 291 M 1 '15

Italian military aeroplanes. J. J. Ide. *diggs Sci Am 8 79:301* M 1 '15

Lincoln Beachey monoplane; details of a composite design that failed from weakness. *diggs Sci Am 8 79:237-8* Apr 10 '15

New type of aeroplanes, an even keel flyer. T. A. E. Lake. *Il diggs Sci Am 8 79:1* Jan 1 '15

Thomas military tractor biplane. *Il Sci Am 8 79:264* Apr 17 '15

Wing data and analysis for a staggered biplane. A. F. Zahm. *diggs J Fr Int 175:642-75* () 14; Abstract. *Am Soc M 15:3* 27:56-7 Jan '15

See also Aeronautics; Aeroplanes motors; Hydroplanes

Aeroplanes—Continued**Equipment**

- Chest telephone for aeroplane pilots. *Il Sci Am* 113:255 S 13 '15; *Elec R & W Elec'n* 87:21-12 J1 31 '15
Instruments used on aeroplanes. *Sci Am S* 80:23 J1 10 '15

Aeroscope

- Aeroscope a novel feature of Panama-Pacific exposition. *Il Eng Rec* 71:423 Ap 3 '15
Aeroscope at the Panama-Pacific exposition. *Il Elec Ry J* 46:31-2 J1 3 '15
Anchored airship: structural amusement device weighing 620 tons. *Il Iron Age* 95:184 Ja 21 '15
Joy riding in the sky. *Il Sci Am* 113:344 Ap 10 '15

Afghanistan**Commerce**

- British India. *Il U S Sp Cons Rep* 72:533-60 '15

Agency

See also Commercial law; Contracts

Agitators. *See* Dorr agitators; Trent agitators

Agricultural chemistry

- Effect of certain organic compounds on wheat plants in the soil. *M. W. Upson and A. L. Powell, Il J Ind & Eng Chem* 7:420-2 My '15
See also Ammonia; Fertilizers and manures; Soil analysis; Soils

Agricultural education

- Agricultural education in Prussia—the German ideal. *Am Ind* 15:23 J1 '15
Agricultural instruction for the millions. *Sci Am* 113:461 N 27 '15

Agricultural exhibitions

- Royal agricultural show at Nottingham. *diag Engineer* 120:8-10, 30-1, 58-9 J1 2-16 '15

Agricultural machinery

- British India; farm-implement trade. *U S Sp Cons Rep* 72:336-53 '15
Farm machinery association inquiry. *Iron Age* 95:92 My 6 '15
Milling the soil; improving on the old-fashioned plow. *L. W. Ellis, Il Sci Am* 112:436 My 8 '15
Progress in small farm tractors. *L. W. Ellis, Il Sci Am* 112:306-8 Ap 3 '15
Royal agricultural show at Nottingham. *Il diag Engineer* 120:58-9 J1 16 '15
Small farm tractors. *Sci Am* 112:304 Ap 3 '15
Smithfield club show. *Il diag Engineer* 118:551-3 D 11 '14
See also Motor plows; Tractors

Manufacture

- Electricity in implement manufacturing. *W. J. Kyle, Il Elec R & W Elec'n* 67:97-101 J1 17 '15

Agricultural pests

- Snakes and their value to the agriculturist. *It. W. Shufeldt, Il Sci Am S* 80:344-5 N 27 '15

Agriculture

- New internationalism in agriculture. *Il. C. Price, Sci Am S* 80:109 Ag 14 '15
See also Clearing of land; Demonstration farms; Drainage; Electricity on the farm; Fencing; Farm buildings; Feeding and feeding stuffs; Fertilizers and manures; Forage plants; Forests and forestry; Irrigation; Plant breeding; Reclamation of land; Seeds; Silos; Soils and headings beginning Soil; Trees; Woodlots; also headings beginning Agricultural, and names of special products

Accounting

- Cost of producing farm crops. *O. R. Martin, J Account* 19:245-59 Ap '15

Chile

- That farm. *Eng & Min J* 99:276-6 F 6 '15

Germany

- Agriculture in Germany and significant facts about potato. *Sci Am S* 80:187 S 11 '15
German agriculture in war time. *Sci Am* 112:216 Mr 6 '15

India

- British India; principal crops. *U S Sp Cons Rep* 72:318-35 '15

Palestine

- Farming in Palestine. *E. F. Beaumont, Il Sci Am* 113:162-3 Ag 21 '15

United States

- Does irrigation pay? *F. H. Newell, Eng Rec* 73:384-5 S 25 '15
Growing hemp in America. *C. R. Dodge, Il Sci Am S* 79:308-9 My 15 '15

Air

- Electric strength of air. *J. B. Whitehead, Am Inst E* 10 Fro 34:843-65 My '15; Discussion. 34:2997-3005 D '15
Larger ions in the air. *J. A. Pollock, Sci Am S* 80:76 J1 31 '15
Properties of saturated air. *W. D. Ennis, Power* 41:402-4 Mr 23 '15
See also Aeronautics; Argon; Atmosphere; Atmospheric pressure; Compressed air; Humidity; Ionization; Liquid air; Mine air; Oxygen; Ozone; Ventilation; also Air conditions; Air flow, and other headings beginning Air

Analysis

- Determination of gasoline vapor in air. *G. A. Burrell and L. W. Robertson, diag J Ind & Eng Chem* 7:112-13 F '15
Dust and bacteria content of city air. *M. C. Whipple, Heat & Vent* 12:27-33 S '15
Exact determination of sulphur dioxide in air. *J. L. Marston, Eng & Min J* 100:726-7 O 30 '15

Air, Compressed. *See* Compressed air

Air, Liquid. *See* Liquid air

Air brake association

- 22d annual convention, Chicago, May 4-7. *diag Ry Age (Mech ed)* 89:295-9 Jo '15
22d annual convention, Chicago, May 4. *Ry R* 56:630-3 My 8 '15
22d annual convention, Chicago, May 4-7. *Ry Age* 58:1015-17 My 14 '15

Air brake hose

- Conservation and protection of air brake hose. *Ry R* 56:303-5 Mr 6 '15
Subers process. *Il Ry Age (Mech ed)* 89:184 S '15

Air brakes

- Air brake association convention. *diag Ry Age (Mech ed)* 89:295-9 Jo '15
Air brake association 22d annual convention. *Ry Age* 58:1015-17 My 14 '15
Air brake association 22d annual convention. *Ry R* 56:630-3 My 8 '15
Air cooling plant, New York Central R. R. Mott Haven yard, New York. *M. Purcell and M. K. Gannon, Il plans Ry R* 56:703-5 My 22 '15
Diaphragm-operated triple valve. *diag Ry Age (Mech ed)* 89:92-4 F '15
Electric-air brake adopted by Pennsylvania R. R. *Eng N* 73:627 Ap 1 '15
Electro-pneumatic brake. *W. V. Turner, Ry Age* 59:511 S 17 '15; Same. *Ry Age (Mech ed)* 89:507-8 O '15
Handling of the air brakes. *Ry Age (Mech ed)* 89:509-10 O '15
Improvement in the handling of air brakes on modern trains. *Ry R* 57:360-1 S 18 '15
Inspection and maintenance of air brakes on freight cars. *Il Barnaby, Ry Age (Mech ed)* 89:406 Ag '15
One hundred per cent operative brakes in freight service. *G. H. Wood and S. C. Wheeler, map Ry R* 57:54-7 J1 10 '15
Westinghouse electro-pneumatic air brake on the Pennsylvania railroad. *Il, T. Wade, Il plan Sci Am* 112:594 Jo 12 '15
See also Air brake association; Air brake hose

Testing

- Testing devices for air brakes. *diag Ry Age (Mech ed)* 89:470 S '15

Air brush painting. *See* Painting, Industrial

Air compressors

- Air-compressor cooling with water barrels. *J. Simmons, Il Eng & Min J* 100:189 J1 31 '15
Air compressor for prospecting. *Il Eng & Min J* 100:844 N 20 '15
Air compressor of the portable type. *Il Iron Age* 96:1104 N 4 '15

Air compressors—Continued

- Air compressor valve of steel strips. *II* Iron Age 95:1010 My 6 '15
- Choosing air compressors for activated-sludge tanks. *C. H. Nordell, Eng N* 74:904-6 N 4 '15
- Cold-air intake duct for air compressors. *R. S. Bayard, Power* 41:716-16 My 25 '15; *Same, Eng & Min J* 100:13-14 J 13 '15
- Combined air compressor and vacuum pump. *II* *Engng Engineer* 119:143 F 5 '15
- Compressor for light-weight, low-floor cars. *II* *diag Mee Ry J* 45:681 O 2 '15
- Cylinder ratios for air compressors. *F. W. Salmon, Power* 41:472-3 Ap 6 '15
- De Laval high speed blower and centrifugal air compressor. *II* *diag Ry Age (Mech ed)* 89:374-6 J 1 '15; *Iron Age* 98:136-7 J 15 '15; *Power* 42:147 Ag 3 '15
- Description of air compressor in the plant of the Nungesser carbon & battery co., Cleveland. *II* *Met & Chem Eng* 13:460-1 J 1 '15
- Efficiency of air compressors and the measurement of air flow. *J. H. Rider, Eng & Min J* 99:1118 Je 26 '15
- Forty-million-revolution compressor-valve test. *II* *Power* 41:537-8 Ap 20 '15
- Friction loss in air compressors. *Sibley J* 29:195-6 Mr '15
- Graphical tables for calculating reciprocating compressors; abstract. *Immerschiff, Am Soc M E J* 37:553-4 N '15
- How one operator controlled an air-compressor motor and used it to drive a direct-current generator. *II, R. Smith, diag Mee W* 66:408 Ag 28 '15
- Imperial portable air compressor. *II* *Power* 41:86 Ja 19 '15
- Ingersoll-Rand high efficiency air compressor. *II* *Power* 41:888 Je 29 '15; *Eng & Contr* 43:524-5 Je 9 '15; *Iron Age* 95:1295-7 Je 10 '15; *Iron Tr R* 59:1116 Je 3 '15
- Investigation of a gas driven air compressor plant at the mine Consolidation. *Am Soc M E J* 37:112-13 F '15
- Jackson rotary air compressor. *II* *Eng & Min J* 100:543 O 16 '15
- Molding air compressors on jolt-rammers. *II* *Foundry* 43:18-19 Ja '15
- New volume regulator for air compressors; with discussion. *II, Wikander, diag Am Soc M E J* 37:170-4 Mr '15
- New York tunnel power plants. *II* *plans Eng N* 74:700-1 O 7 '15
- Palmetto packing for air compressors. *II* *Int Marine Eng* 20:374 Ag '15
- Plate valves for high-speed air compressors. *C. J. MacFadden, diag Power* 41:356-8 Mr 16 '15; *Same cond, Eng M* 49:220-1 My '15
- Points about air compressor practice. *R. H. Rowland, Power* 42:167 90 Ag 10 '15
- Portable gasoline engine air compressors. *II* *Eng N* 73:126 Ja 21 '15; *Eng & Min J* 99:241 Ja 30 '15
- Turbo-blowers and turbo compressors. *O. H. Wunderlich, Power* 42:280 Ag 21 '15
- Two stage single cylinder compressed; abstract. *diag Am Soc M E J* 37:342-3 Je '15
- See also* Air pumps; Compressed air

Testing

- Testing of air compressors. *C. E. Dwyer, diag Engineer* 119:622-3 Ja 25 '15

Air conditions

- Air conditioning; abstract. *J. I. Lyle, Am Soc M E J* 37:296 My '15
- Air conditioning in a moving picture laboratory. *II* *plans Heat & Ven* 12:20-6 F '15
- Air excretion. *M. W. Franklin, J Ind & Eng Chem* 6:860-5 O '14; *Same; with discussion, Am Soc Heat & V* 6:20327 84 '14
- Air we breathe a study of temperature, humidity and dust content. *T. Hubbard, Heat & Ven* 12:22-5 Ja '15
- Dust and bacteria content of city air. *M. C. Whipple, Heat & Ven* 12:27-33 N '15
- Measure of comfort in factories; construction and use of the kathermometer. *J. A. Menger, II Heat & Ven* 12:24-7 N '15
- More about pure air. *Metal Work* 83:150 Ja 22 '15
- New York state commission on ventilation; high temperatures have marked physiological effect. *Mee Ry J* 41:1330 1 19 '14

- Physiological effect of natural gas. *G. A. Burrell and G. G. Oberfell, U S Bur Mines Tech Pa* 109:15-19 '15; *Same, Sci Am* 8 80:303-4 N 6 '15
- Progress of laboratory experiments with air. *F. S. Lee, Metal Work* 84:338-9 J 8 10 '15
- Regulating temperature and humidity in appraising cotton goods. *II* *diag plan Textile World* 48:380-2 Ja '15
- Relation of ventilation to bodily health. *T. R. Crowder, Metal Work* 84:116-17 J 1 23 '15
- Results of physiological and psychological observations during the first year's experiments; abstract. *D. D. Kimball and G. T. Palmer, Power* 41:177 1 2 '15
- Savo air moistener. *II* *Heat & Ven* 12:52-3 N '15
- Studies in air cleanliness. *G. C. Whipple and M. C. Whipple, Heat & Ven* 12:23 N J 1 '15
- See also* Air purification; Cooling; Dust prevention; Dust removal; Humidity; Smoke prevention; Ventilation

Air ducts. See Air pipes**Air engines**

- Hot-air engine. *C. E. Dwyer, II Sci Am* 113:165 J Ag 21 '15
- Using a pneumatic drill motor as a hoisting engine. *V. T. Kropidowski, diag Ry Age* 59:880 N 10 '15

See also Compressed air

Air filters

- Air cleaning apparatus for the ventilation of generators and transformers. *W. Baum, II diag Gen Elec R* 18:301 12 Ag '15
- Air filters for turbo-generators. *II* *diag Engineer* 119:21-2, 35-7, 81-3 Ja 1 8, 25 '15
- See also* Air washers

Air flow

- Action of an air jet on the surrounding air; abstract. *T. Triebel, Am Soc M E J* 37:262 5 My '15
- Best way to take anemometer readings; committee report. *Am Soc Heat & V* 6:19-202 7 '15
- Efficiency of air compressors and the measurement of air flow. *J. H. Rider, Eng & Min J* 99:1118 Je 26 '15
- Flow of air and steam through orifices. *A. L. Westcott, diag Power* 42:516 16 1 12 '15
- Flow of air in heating and ventilating ducts, including an example in duct design. *L. A. Harding, Am Soc Heat & V* 6:16-219 27 '15
- Frictional losses in elbows and ducts. *C. A. Fuller, diag Metal Work* 83:371 2 J 1 '15
- Lecture course on elements of heating. *C. A. Fuller, Metal Work* 83:371 2, 53-57-58, 703-5 Ja 2 '14, Ap 16, My 1 '15
- Loss of pressure due to elbows in the transmission of air through pipes or ducts. *F. L. Dwyer, Am Soc Heat & V* 6:19-266 16 '15
- Movement of air flow; abstract. *V. K. Ohmer, Am Soc M E J* 37:317 Je '15, 195 caption. *E. V. Hull, Heat & Ven* 12:74, 6 1 '15
- Simplified graphical or analytical process for the determination of dimensions of pipes in ventilating and heating installations; abstract. *Hubber and Hudthe, Am Soc M E J* 37:352 7 1 '15
- Standardization of the use of the Pitot tube; report of committee, *diag Am Soc Heat & V* 6:20 219 15 '14
- See also* Anemometers; Gas flow; Steam flow

Air lifts

- Air lift efficiency. *E. M. Ivanc, diag Power* 41:843 6 Je 2 '15
- Air lift pumping. *P. H. Bergersten, Miley J* 29:209 71 My '15; *Abstract Met & Chem Eng* 13:597 Ag '15
- Air lift pumps on a central station load. *diag Elec R & W Elec* 66:1191 2 Je 26 '15
- Draining a swamp by air lifts. *Eng & Min J* 100:102 N 4 '15
- Installation and operation of air lift pumping system. *C. M. Wetherill, Eng & Contr* 43:422 3 My 12 '15
- Proper installation of air lift pumps. *A. H. Ford, Eng & Contr* 43:238-9 Mr 17 '15
- Pumping water by compressed air. *G. C. Thompson, diag Am Gas Light J* 102:251 2 Ap 19 '15

Air lifts—Continued

Trouble with an air lift. E. M. Ivans. *diag*
Power 40:890-1 D 32 '14

Air liquefaction. See Liquefaction of gases

Air meters

See also Anemometers; Compressed air meters

Air permeability of building materials; abstracts.

H. von Thielmann. *Am Soc M E J* 37:477-8
Ag '15; *Hent & Ven* 12:44-5 S '15

Air pipes

Canvass air duct in tunnelling. *Eng N* 74:177-8
Jl 23 '15

Flow of air in heating and ventilating ducts,
including an example in duct design. L. A.
Harding. *Am Soc Heat & V E* 19:219-27 '13
Loss of pressure due to elbows in the trans-
mission of air through pipes or ducts. F. L.
Busey. *Am Soc Heat & V E* 19:306-76 '13

Air pumps

Cleaning air pumps. W. E. Johnson. *plan Ry*
Age (Mech ed) 89:83 F '15

Device for placing air pumps. W. S. Whit-
ford. *Il Ry Age (Mech ed)* 89:581-2 N '15

High vacuum reciprocating air pump. *diag*
Engineer 118:563 D 11 '14

Modern power-house condensing plant. A.
Arnold. *Inst E E J* 53:848-50 Je 15 '15

Oiling air pump air cylinders. E. A. Murray.
diag Ry Age (Mech ed) 89:408 Ag '15

Reboring air pump cylinders. J. A. Jesson.
diag Ry Age (Mech ed) 89:138 Mr '15

Repairing 9% in. air pump cylinder heads.
B. (study. *diag Ry Age (Mech ed)* 89:530
O '15

Rotary vaneless air-pump. *Il diag Power* 42:
355-6 S 7 '15

Special checks for air pump repairs. W. W.
Mills. *Il Ry Age (Mech ed)* 89:183 Ap '15

Test of turbo air pump. *Il diag Power* 41:
412-3 Mr 30 '15

See also Air compressors; Air lifts

Air purification

Purification and sterilization of air. S. Born
and W. R. Carthaus. *Il J Ind & Eng Chem*
7:233-6 Mr '15

See also Air filters; Air washers; Dust re-
moval; Smoke prevention

Air resistance

How rifle bullets fly. J. C. Crossman. *Il Sci*
Am 113:24-Jl 3 '15

Why speed increases fuel consumption. Auto-
mobile 33:427-8 S 2 '15

Air sampling

Rock-dust sampler. O. Ruhl. *Il Eng & Min J* 99:
238 Ju 30 '15

Air shafts

Air shaft illumination as studied by models.
C. H. Sharp. *Ilum Eng Soc* 9:598-610 no 7
'14

Air testing

Test for dirt in an air supply. S. A. Moss. *Il*
Gen Elec R 18:622-5 Jl '15

Testing the air supplied to turbo-generators.
Engineer 120:139-40 Ag 6 '15

See also Air Analysis; Air sampling

Air washers

Air cleaning apparatus for the ventilation of
generators and transformers. W. Traut. *Il*
diag Gen Elec R 18:891-12 Ag '15

Air washers for turbine generators. *Il Eng M*
49:sup3-4 Je '15

Ideal air washer. *Il Heat & Ven* 12:56-8 Mr
'15

Lecture course on elements of heating. C. A.
Fuller. *Metal Work* 84:583 J N 5 '15

Spray-type air washers and coolers for New
York station. *Il diag Elec W* 65:340-50 F 6
'15

Standardizing a method of testing air washers;
report of committee, with discussion. *Am*
Soc Heat & V E 20:426-41 '14

Supplying air to generators at constant temp-
erature and humidity. *Il diag Elec W* 66:22
Jl 10 '15

Test for dirt in an air supply. S. A. Moss. *Il*
Gen Elec R 18:622-5 Jl '15

Test of Kansas City air washer. *Il Elec Ry J*
46:240-1 Ag 7 '15

See also Air filters

Air washing

Recent tests on recirculation of washed air.
G. L. Larson. *Il Metal Work* 84:676-7+ N
26 '15; *Abstract. Am Soc M E J* 37:723-4
D '15

See also Air filters; Air purification; Dust
removal; Gas cleaning; Smoke prevention

Airships. See Balloons and airships

Akron, Ohio

Bridges

Ornamental bridge at Akron built of slag con-
crete. *Il Eng N* 74:769-70 O 21 '15

Churches

Trinity Lutheran church. I. T. Frary. *Il plans*
Arch Rec 37:252-67 Mr '15

Sanitary affairs

Akron is building sewage and garbage dis-
posal plants. *plan Eng Rec* 71:53 Ja 9 '15

Sewage disposal plant for Akron. *Il diag plan*
Munic J 39:71-4, 113-14 Jl 15-22 '15

Sewage-treatment and garbage-reduction
works for Akron, Ohio. *Eng N* 73:147 Ja 28
'15

Streets

Examination of Akron pavements. *Munic J* 37:
954-5 D 31 '14

Water supply

Akron's water purification plant. *diag Munic*
J 38:725-8 My 27 '15

Low-lift centrifugal pumps at Akron will oper-
ate under unusually varied conditions. F. A.
Barbour. *Il Eng Rec* 71:580-1 My 8 '15

Alabama Great Southern railroad

Finances of the Alabama Great Southern. *Ry*
Age 57:1034 D 4 '14

Alabama power company

Foundations for transmission line towers and
tower erection. W. E. Mitchell. *diag plan Am*
Inst E E 10 Pro 34:187-92 Je '15; *Abstract.*
Elec W 66:10 Jl 3 '15

Alarms, Electric. See Electric alarms

Alaska

Alaskan railroad surveys. D. L. Roeburn. *Il*
Eng N 73:104-6 Ja 21 '15

Alaska's road and bridge builders face snow,
frozen ground and glacial floods. C. E. Ted-
gerton. *Il map Eng Rec* 71:764-6 Je 10 '15

Bridges

Construction and cost data on some highway
bridge work in Alaska. F. A. Pope. *Eng &*
Contr 42:387-8 O 21 '14

Description and travel

Dawson to Nome. H. E. Chuko. *Il Eng & Min*
J 98:1121-6 I 26 '14

Industries and resources

Alaskan mining in 1914. *Eng & Min J* 99:116-
19 Ja 9 '15

Chignik bay, Alaska, coal fields. W. R. Crane.
Il map Colliery 35:457-61 Ap '15

Kenai district. *Eng & Min J* 100:676 O 23 '15

Petroleum fields of Alaska. A. H. Brooks. *maps*
Am Inst Min 10 Bul 98:199-207 F '15

Tin mining in Alaska. *map Eng & Min J*
100:838-9 N 20 '15

Winter mining at Fairbanks. H. L. Ellis. *Il*
diag Eng & Min J 100:707-11 O 30 '15

LAW

United States mining statutes annotated.
J. W. Thompson. *U S Bur Mines Bul* 94:
pt 2, 861-913 '15

Railroads

See Railroads Alaska

Albany, New York

Railroads

Delaware & Hudson terminal at Albany, N. Y.
Il plan Ry Age 59:58-60 Jl 9 '15

Difficult grade crossing elimination in Al-
bany, N. Y. *Il diag plan Ry Age* 59:961-3
N 10 '15

Sewerage

Albany sewage-disposal works. J. H. Greg-
ory. *plans Eng N* 74:692-5 O 7 '15

Albany, New York—Sewerage—Continued

Albany's sewage treatment plant, sixteen Imhoff tanks and eight sludge beds, 11 dings Muncie J 38:837-40 Je 17 '15

Alberta**Industries and resources**

Correlation and geological structure of the Alberta oil fields, D. B. Dowling, map Am Inst Min 19 Bul 102:1355-64 Je '15

Albumin

Coagulation of albumin by electrolytes, W. D. Bancroft, Met & Chem Eng 13:317-18 My '15
How much albumin is needed in our diet? M. Hindede, Sci Am 8 79:327 My 22 '15
New method of producing albumen, Sci Am 113:120 Ag 7 '15

Alcalá De Henares, Spain**Architecture**

Palacio arzobispal, now Archivo historico, A. G. Byrne, II Brickb 21:85-8 Ap '15

Alcohol

Alcohol and fodder from wood, Sci Am 113: 361 O 23 '15
Determination of methyl and ethyl alcohol in spirit varnishes, G. W. Knight and C. T. Lincoln, J Ind & Eng Chem 7:337-43 O '15
Hardwood distillation industry in America, E. H. French and J. R. Withrow, II Met & Chem Eng 13:30-9 Ja '15; Same, J Ind & Eng Chem 7:47-55; Discussion, H. C. Chute, 7:55-6 Ja '15
Manufacture of ethyl alcohol from wood waste; the hydrolysis of white spruce, F. W. Kressmann, J Ind & Eng Chem 7:920-2 N '15
Manufacture of ethyl alcohol from wood waste; western larch as a raw material, F. W. Kressmann, J Ind & Eng Chem 7: 922-3 N '15
Occurrence of methyl alcohol in corn slilage, E. B. Hart and A. R. Lamb, Am Chem Soc J 36:2114-18 O '14
Preliminary experiments on the effect of temperature control on the yield of products in the destructive distillation of hardwood, R. C. Palmer, dings J Ind & Eng Chem 7: 663-9 Ag '15

Alcohol, Denatured

Conditions of the Russian treasury department competition on the industrial uses of alcohol, J Ind & Eng Chem 7:637-8 J1 '15

Utilization and denaturing of spirit, Engineer 120:181 Ag 20 '15

Alcohol as fuel

Fuel becomes French government monopoly in 1917, Automobile 33:486 S 9 '15
Manufacture of ethyl alcohol as a fuel for internal combustion engines, R. O. Jenkins, Sci Am 111:509 D 19 '14

New alcohol fuel, Engineer 119:581 Je 11 '15

Alcoholic solutions. See Solution (chemistry)**Alcohols**

Absorption and the surface tensions of aqueous solution of homologous fatty acids and alcohols, M. Neldie, Am Chem Soc J 37:513-15 Mr '15

Aldehydes

Addition compounds of aldehydes and ketones with organic acids, J. Kendall and W. A. Gibbons, Am Chem Soc J 37:149-62 Ja '15

Isolation of crystalline *dl*-glyceric aldehyde from a syrup obtained by the oxidation of glycerol, E. J. Witzemann, Am Chem Soc J 36:2223-34 O '14

Synthetic preparation of *dl*-glyceric aldehyde, E. J. Witzemann, Am Chem Soc J 36:1904-16 S '14

Alfalfa

Kingdom present in alfalfa; alfalfa investigation, C. A. Jacobson and A. Holmes, Am Chem Soc J 36:2170-82 O '14

Algae

Algae growths cover Atlanta sewage filters, C. C. Honnion, II Eng Rec 72:235 S 11 '15

Allen labor. See Labor laws**Alkali soils**

Investigation of the durability of cement drain tile in alkali soils, R. J. Wig and G. M.

Williams, dings pls U S Bur Stand Tech Pa 44:1-56 '15; Excerpts, Concrete Cem 7:145-7 O '15

Alkalies

Binary and ternary systems of the nitrates of the alkali and alkaline earth metals, W. D. Harkins and G. L. Clark, Am Chem Soc J 37:1816-28 Ag '15

Commercial alkalies, their strength and value, Textile World 43:679-82 S '15

Search for an alkali element of higher atomic weight than cesium, G. P. Baxter, Am Chem Soc J 37:286-8 D '15

See also Alkali soils; Ammonia; Concrete, Effect of alkalies on; Potassium; Sodium

Alkalimetric solutions

Arsenious oxide as an alkalimetric standard, A. W. C. Meixner and P. N. McCarthy, Am Chem Soc J 37:2021-4 S '15

Standardization of alkalimetric solutions, P. D. Dodge, J Ind & Eng Chem 7:29-30 Ja '15

Alkaloids

See also Veratrine

Alleys

Alley problem, C. B. Hall, Eng N 71:871 N 4 '15

Concrete alley paving in Chicago, E. E. Bates, II Muncie Eng 19:147 S O '15

Allen-Chalmers manufacturing co.

Facts about Allen-Chalmers case, Iron Tr R 66:918-50 My 13 '15

Allotropy

Manganese steel and the allotrope theory, A. Sauvour, II Am Inst Min 17 Bul 93:2139-49 S '14; Abstract, Iron Tr R 65:1002 N 26 '14; Discussion, Am Inst Min 17 Bul 100: 787-90 Ap '15

Metastability of metals, A. Vossmer, Met & Chem Eng 13:335 G S 1 '15

Physical changes in iron and steel, Engineer 120:16 J1 2 '15

See also Critical point

Alloys

Acid resisting alloy to replace platinum in the construction of a bomb calorimeter, E. W. Parr, II Am Chem Soc J 37:545-52 N '15

Bearing metal of low elastic limit from Age 36:1016 M 6 '15

Brinell hardness, testing of non ferrous alloys, V. Skillman, Metal Ind n 12 423-4 O '14; Same, Foundry 43:111-12 Mr '15

Choice of alloys for water work design II, Carpenter, Am Water Works Assn J 2 341-5 Je '15; Same also, Eng & Contr 43:333 4 Ap 11 '15

Determination of critical point in iron, steel and alloys, II dings Met & Chem Eng 13:443-18 D '15

Developing an acid resisting alloy, E. W. Parr, II Iron Tr R 67 901-1 N '15; Same, Metal Ind n 12 451 S N '15; Abstract, Am Soc M E J 37:656 7 N '15

Die casting of white alloys, J. C. Work, Rel Alloys 2:36 D 30 '14

Formulas for specific gravities, etc., of alloys, W. L. Tryon, Foundry 43:224 Je '15

Industrial uses of metallic alloys, W. C. Corroll, Metal Work 81 30-31 D '15

Many carbon free metals and alloys now available, II. D. Browne, Eng N 71 636 7 H 30 '15

Need of standard railroad car bearing alloy, R. R. Clarke, Foundry 43 457 S N '15

New alloys of light metals, C. C. Mosher, Metal Ind n 12 4333 4 O '15

New die casting metal; Amper bronze, Met & Chem Eng 13 931 D 1 '15

Philosophy and properties of alloys, R. R. Clarke, Foundry 43:491 S 14 '14

Rapid analysis of alloys for tin, antimony and arsenic, P. A. Miel, dings J Ind & Eng Chem 7:211-12 Mr '15

Recent progress with alloys theory explaining self hardening metals including the special steels, L. Chiffet, Automobile 31:1118-20 D 17 '14

Specifications for alloys for high speed superheated steam turbine blades, W. H. Parker, II Engineer 120:411-3 N 5 '15

Alloys—Continued

Strength of metals vs. composition. E. A. Lewis. Metal Ind n s 13:201-2 My '15

See also Aluminum alloys; Amalgams; Babbitt metal; Brass; Britannia; Bronze; Copper alloys; Iron alloys; Metallurgy; Metallurgy; Monel metal; Solder and soldering; Steel alloys

Patents

Court of appeals decision in nickel-chromium resistor suit. Met & Chem Eng 13:414-15 JI '15

Almshouses

Cook county infirmary at Oak Forest, Ill. C. A. Erikson. Il plans Brickb 24:277-82, pl 161-5 N '15

Alphabet

Cuneiforms. W. Rice. Inland Ptr 54:387-8 D '14

Egyptian alphabet. W. Rice. Inland Ptr 53:886-8 S '14

How we got our alphabet: Aramean, alphabet of religions. W. Rice. Inland Ptr 54:508-9 Ja '15

How we got our alphabet: earlier English and Irish alphabets. W. Rice. Inland Ptr 55:83-4 Ap '15

How we got our alphabet: Greek alphabets. W. Rice. Inland Ptr 54:689-90 F '15

How we got our alphabet: the alphabetic discoveries. W. Rice. Inland Ptr 55:531-2 JI '15

How we got our alphabet: the English alphabets. W. Rice. Inland Ptr 55:234-5 My '15

How we got our alphabet: the Latin alphabet. W. Rice. Inland Ptr 54:823-4 Mr '15

See also Cuneiform writing; Printing

Alton, Illinois**Sewerage**

Design, construction and cost of new sanitary sewerage system at Alton, Ill. J. H. Schwaab. Eng & Contr 43:129-30 F '10 '15

Alumina

Alumina in steel. C. F. Comstock. Il Met & Chem Eng 13:891-5 D '15

Phosphate method for alumina. F. G. Hawley. Eng & Min J 99:536-7 Mr 20 '15

Aluminates

Constitution of aluminates. E. C. Mahin. Am Chem Soc J 36:2381-3 N '14

Constitution of aluminates. W. Blum. Am Chem Soc J 36:2383-4 N '14

Hydration of Portland cement. A. A. Klein and A. J. Phillips. pls U S Bur Stand Tech 14:433-71 '14

Aluminum

Aluminum as a check to sulphide segregation in steel ingots. Iron Age 96:130 JI '15

Aluminum business in 1914. Eng & Min J 99:80 Ja 9 '15

Aluminum in the gas industry. J Ind & Eng Chem 7:255-6 Mr '15

Aluminum: its origin and susceptibility. J. Scott. Il Metal Ind n s 13:105-6 Mr '15

Aluminum most abundant metal. Metal Work 84:493 O 15 '15

Aluminum nitride. diag Met & Chem Eng 13:504 Ag '15

Aluminum or iron crank cases: a comparison of the two materials on the bases of weight, strength and cost. V. I. Moncrieff. Horseless Age 35:582-3 Ap 28 '15

Aluminum precipitation at Nipissing. E. M. Hamilton. Eng & Min J 99:568-71 Mr 27 '15

Aluminum solder. Mee R & W Mee'n 67:670-1 O 9 '15

American institute of metals meeting at Atlantic City, Sept. 28. Iron Age 96:820-2 O 7 '15

Analyzing heat flow: use of aluminum for automobile motor construction. R. J. Sherbondy. Automobile 33:834-5 N 4 '15

Autogenous soldering or welding of aluminum. Il Mach 21:369-71 Ja '15

Cutting aluminum rapidly on a buzz planer. J Fr Inst 180:634 N '15

Manufacture of aluminum in the United States; electrometallurgical industries as possible consumers of electric power. D. A. Lyon and R. M. Keeney. J Fr Inst 180:479 O '15

Melting aluminum chips. H. W. Gillett. Metal Ind n s 13:417-18 O '15; Same. Foundry 48:462-3 N '15; Same. Iron Tr R 57:942-3 N 11 '15

Methods of jointing aluminum. Il Mach 21:470-8 F '15

Nickel-plating on aluminum. Sci Am S 80:197 S 25 '15

Recent developments in aluminum. E. V. Fannell. Il Metal Ind n s 13:453-5 N '15

Satin finish on aluminum. Foundry 42:500 D '14

Small aluminum tubes. J. P. Sheehy. Il diag Metal Ind n s 13:55-6 F '15

Soldering and brazing aluminum. Mach 21:286-8 D '14

Successful acetylene aluminum welding. Metal Work 84:178-4 Ag 6 '15

Use of aluminum in war. N. Flamel. Sci Am S 80:208 S 25 '15

Working aluminum at 400 degrees fahrenheit. Il Horseless Age 36:373 O 15 '15

Aluminum alloys

Adoption of aluminum pistons. W. M. Levett. Automobile 33:421-+ S 2 '15

Aluminum alloy piston. J. E. Diamond. Il diag Automobile 33:551-2 S 23 '15

Aluminum alloys as surface protection for metals subject to high temperatures. Eng N 72:1123 D 3 '14

Aluminum in automobile chassis. A. L. Clayden; J. E. Diamond. Automobile 33:330-1 Ag 19 '15

Aluminum-nickel. J. Canac and E. Tassilly. Eng M 49:273-4 My '15

Aluminum piston will never prove success in truly high-duty motor. P. H. Porter. Automobile 33:420-1 S 2 '15

Aluminum versus steel in motor construction. J. E. Diamond. Automobile 33:508-9 S 16 '15

Binary alloys of aluminum; abstract. H. Schirmer. Am Soc M 10 J 37:721 D '15

Exposure tests of light aluminum alloys. Wilson. Mee R & W Mee'n 67:674 O 9 '15

How scientific design and use of aluminum alloys will cheapen motoring. A. L. Clayden. Il diag Automobile 33:225-30 Ag 5 '15

How titanium-aluminum bronze is produced. C. Vickers. Il Foundry 43:273-8 JI '15

Manufacture and use of aluminum-vanadium; abstract. W. W. Clark. Am Soc M 10 J 37:666 N '15

Piston practice; present day design with special reference to aluminum alloy. J. E. Diamond. Il diag Automobile 33:371-7 N 11 '15; Discussion. 33:521-4 N 18 '15

Possible troubles with aluminum motor. A. L. Clayden and others. Il Automobile 33:275-7 Ag 12 '15

Properties of aluminum bronze alloys. W. M. Corse. Il Foundry 43:459-60 N '15

Titanium aluminum bronze. W. M. Corse and C. Vickers. Metal Ind n s 13:190-1 My '15

Titanium-aluminum bronze castings. W. M. Corse. Met & Chem Eng 13:511-13 Ag '15

See also Calorizing; Magnalium

Aluminum chloride

Action of aluminum chloride on the aliphatic ethers. C. B. Frankforter and G. A. Tunkle. Am Chem Soc J 37:2560-7 N '15

Improvement of high boiling petroleum oils, and the manufacture of gasoline as a by-product therefrom, by the action of aluminum chloride. A. M. McAfee. J Ind & Eng Chem 7:737-41 S '15; Same. Met & Chem Eng 13:593-7 S 15 '15; Same abr. Am Gas Light J 103:293-5+ N 8 '15

Aluminum founding

Aluminum aeroplane motor casting. Il Automobile 33:371 Ag 26 '15

Aluminum die casting a commercial achievement. C. Pack. Metal Ind n s 13:412-13 O '15; Same. Foundry 43:456-7 N '15; Same. Iron Tr R 57:1036 J. N 25 '15; Same cond. Iron Age 96:820 O 7 '15

Aluminum die castings. A. B. Norton. Metal Ind n s 12:503-4 D '14

Difficulties with aluminum match-plates. Foundry 43:113-14 Mr '15

How to make automobile engine castings. Il Foundry 43:291-4 Ag '15

Making aluminum automobile bodies. Il Iron Age 95:1913-16 Ja 3 '15

Aluminum hydroxide

Effect of ammonium chloride upon ferrie and aluminum hydroxides during ignition. H. W. Daudt. *J Ind & Eng Chem* 7:847-8 O '15

Aluminum iodide

Amorphous aluminum iodides. H. C. Franklin. *Am Chem Soc J* 37:847-52 Ap '15

Aluminum metallurgy

Electro-metallurgical industries as possible consumers of electric power. D. A. Lyon and R. M. Keeney. *Am Inst Min & Bul* 304: 1719-24 Ag '15

Hot process of aluminum production. *Eng N* 73:177-8 Ja 28 '15

Smelting of metals in the electric furnace. D. A. Lyon and R. M. Keeney. *U S Bur Mines Bul* 77:72-81 '14

Aluminum pistons. See Pistons**Aluminum sulphate**

Columbus waterworks makes its own aluminum sulphate. A revolutionary step in water purification practice. C. P. Hoover. *Eng Rec* 71: 576-7 My 8 '15; Same. *Eng & Contr* 43:418-9 My 19 '15

Aluminum trioxide

Comparison of the relative drying powers of sulfuric acid, calcium chloride and aluminum trioxide when used in ordinary Schellier desiccating jars. J. W. Murden and V. Elliott. *J Ind & Eng Chem* 7:320-1 Ap '15

Alunite

Alunite and pyrophyllite in trisulphide and Jurassic volcanics at Kyaukse Sound, British Columbia. G. H. Clapp. *Geon Geol* 10:70-88 Ja '15

Amalgamation

Amalgamation tests. W. J. Sharwood. *Am Inst Min & Bul* 304:1659-70 Ag '15; Excerpta. *Met & Chem Eng* 13:327 O '15

See also Alloys; Amalgams; Mercury

Amalgams

Effect upon their solution tensions of dissolving the alkali and alkali earth metals in mercury, and the constitution of such solutions. C. M. Smith. *Am Chem Soc J* 37:75-80 Ja '15

Relative efficiency of various amalgams in the recovery of gold. F. A. Thomson and L. Koffer. *Met & Chem Eng* 13:367-70 Je '15

Vapor pressure of thallium amalgams. J. H. Hildebrand and E. D. Eastman. *Am Chem Soc J* 37:3462-9 N '15

Vapor pressures of silver, gold and thallium amalgams. E. D. Eastman and J. H. Hildebrand. *Trans Am Chem Soc* 37:2020-30 O '14

Amazon stone

Occurrence of amazon stone at North White Plains, N. Y. F. F. Burr. *Il Sch Mines Q* 30:186-8 Ja '15

Ambach

Lightest known wool. *Sol Am S* 79:98 F 6 '15

Ambulance trains. See Hospital trains**Ambulances**

Ambulance corps dispatched to front. *Il digms Automobile* 31:156 S D 21 '14

American ambulances in the field. *Il Automobile* 32:266-9 F 1 '15

British give cars for ambulance work. *Il Automobile* 33:323 Ag 19 '15

War uses of the motorcycle; cycle ambulance and motor machine gun. *Il Sol Am* 112:138 F 6 '15

American academy in Rome

Description of building, educational policy, etc. G. G. La Forge. *Il Am Inst Arch J* 3:52-72 F '15

American association of engineers

Organization. *Power* 42:459-60 N 28 '15

Time at hand when the engineering society should awake to its deficiencies. B. McCullough; abstracts. *Eng Rec* 72:421-2 O 12 '15; *Power* 42:630-1 O 12 '15

American association of passenger traffic officers

Special meeting. French Lick, Ind., Oct. 26. *Ity Age* 59:854-5 N 5 '15

American association of public accountants

Advantages of society and association affiliations. J. D. Joplin. *J Account* 19:325-33 My '15

American association of railroad superintendents 28th annual convention, San Francisco, Aug. 19-20. *Ity Age* 59:339-82 Ag 27 '15

American association of state highway officials New association of state highway officials. *Eng Rec* 70:sup23, D 19 '14

Organization, Washington, D. C., Dec. 12. *Good Roads* n 3 9:58 Ja 2 '15

American boiler manufacturers' association

27th annual convention, Erie, Pa., June 22. *Iron Tr R* 56:1301 Je 21 '15

American chemical society

50th meeting, New Orleans, March 31-April 3. *J Ind & Eng Chem* 43:30-9 My '15

50th meeting, New Orleans, March 31-April 3. *Met & Chem Eng* 13:380-8 My '15

50th meeting; program of papers and reports of committees. *J Ind & Eng Chem* 7:411-3 My '15

51st meeting, Seattle, Wash., Aug. 31-Sept. 3. *Met & Chem Eng* 13:387-9 S 14 '15

51st meeting, Seattle, Wash., Aug. 31-Sept. 3; program of papers. *J Ind & Eng Chem* 7: 820-1 O '15

American civic association

10th annual convention, Washington, D. C. *Munic J* 37:967 D 31 '14

American concrete institute

Ballon fire damaged at Concrete Institute, Chicago, Feb. 9-12. *Eng Rec* 71:218 F 20 '15

11th annual convention, Chicago, Feb. 9-12. *Concrete* 6:113-22 Mr '15

11th annual convention, Chicago, Feb. 9-12. *Eng N* 73:330-1 F 18 '15

American concrete pipe association

Annual convention, Chicago, Feb. 14-16, 1915. *Concrete* 6:111 Mr '15

American cotton manufacturers' association

Meeting at Memphis. *Textile World* 19 175 O7 My '15

American electric railway association

Annual convention, San Francisco, 1915; abstract of paper, reports and discussions. *Elec Ry J* 46 ad 66 O 9 '15

Annual convention, San Francisco, Oct. 4-8. *Elec W* 66:391 O 9 '15

Annual convention, San Francisco, Oct. 4-8; program. *Elec Ry J* 46:362 F 25 '15

Chicago Elevated cotton panned. *Elec Ry J* 46:391 Ap 24 '15

Code of principles. *Elec Ry J* 44:992, 1040 O 31, N 1 '14

Code of principles. *Elec Ry J* 46:363 D 26 '14

Code of principles. T. P. Crosby. *Elec Ry J* 46:370-3 F 20 '15

Code of principles. T. B. Williams. *Elec Ry J* 46:370-2, Discussion G. K. Tripp; M. G. Smith. 46:374 16 Ja 30 '15

Isolating the well. objection to the code of principle. by the "New republic". *Elec Ry J* 44:130 D 5 '14

7th annual mid year meeting. *Elec Ry J* 46: 211 19 Ja 30 '15

American electrochemical society

American electrochemical society in its external relations. F. A. Laddury. *Met & Chem Eng* 13:377-9 My '15

27th general meeting, Atlantic City, April 22-23. *Elec R & W* 110:110-21 F 1 My 1 '15

27th general meeting, Atlantic City, April 22-23. *Elec W* 65:110-10 My 1 '15

27th general meeting, Atlantic City, April 22-23. *Met & Chem Eng* 13:311-20 My '15

28th general meeting, San Francisco, Sept. 16-17. *Elec R & W* 110:110-21 F 1 My 1 '15

American electroplaters' society

Outlook for the future effect of the society on Canadian metal industries. W. B. Burrows. *Metal Ind* n 13:220 S Jo '15

32 annual convention, Dayton, O., June 2-6. G. H. Proctor. *Metal Ind* n 13:223 S Jo '15

3d annual meeting, Dayton, O., June 2-6. *Foundry* 43:284 J1 '15

- American federation of arts**
6th annual convention. *Am Inst Arch J* 3:241-3 Je '15
- American forestry association**
Forest relations between the East and the West as the East hopes to see them. H: S. Drinker. *Am For* 21:1054-6 N '15
- American foundrymen's association**
Annual convention, Atlantic City. *Foundry* 43:385-94 O '15
Annual convention, Atlantic City. *Iron Tr R* 57:694-701 O 7 '15
Annual meeting at Atlantic City; programs. *Foundry* 43:333-41 S '15
Convention held at Atlantic City, Sept. 27-Oct. 1; abstract of papers and discussion. *Iron Age* 96:814-19, 822-4 O 7 '15
- American gas institute**
Address. E. C. Jones. *Am Gas Light J* 103:213 O 4 '15
Constitution and by-laws. *Am Gas Inst Pro* 9: pt 1, 46-62 '14
List of members of the American gas institute. *Am Gas Inst Pro* 9: pt 2, 1815-1926 '14
- American good roads congress.** See **American road builders' association**
- American Institute of architects**
First award of the collaborative prize of the A. I. A. to the students of the American academy in Rome. *Am Inst Arch J* 3:344-5 Ag '15
48th annual convention; summarized report of the proceedings. *Am Inst Arch J* 2:579-90 D '14
Personal reminiscences of Charles Follen McKim. G. Brown. *Arch Rec* 38:576-82 N '15
- American Institute of chemical engineers**
Los Angeles meeting, Aug. 16-18. *Met & Chem Eng* 13:530 S 1 '15
7th annual meeting, Philadelphia, Dec. 2-5, 1914. *Eng & Min J* 98:1033 D 12 '14
7th annual meeting, Philadelphia, Dec. 2-5, 1914. *J Ind & Chem Eng* 7:64-9 Ja '15
7th annual meeting, Philadelphia, Dec. 2-5, 1914. *Met & Chem Eng* 13:41-2 Ja '15
7th semi-annual meeting, San Francisco, Aug. 25-28. *Met & Chem Eng* 13:603-17 S 15 '15
- American Institute of electrical engineers**
History of the Schenectady section of the A. I. E. E. S. M. Crego. *Gen Elec R* 18: 1006-7 O '15
Midwinter convention; abstracts of papers. *Elec W* 65:523-8 F 27 '15
Midwinter convention, New York city, February 17-19, 1915. *Elec R & W Elec'n* 66: 380-96 F 27 '15
Panama-Pacific convention, San Francisco, Sept. 16-18. *Elec R & W Elec'n* 67:567-73 S 25 '15
Panama-Pacific convention, San Francisco, Sept. 16-18. *Elec W* 66:677-9 S 25 '15
32d annual convention, Dear Park, Md., June 29-July 2. *Eng N* 74:90-1 J 1 8 '15
32d annual convention, Dear Park, Md., June 29-July 2; abstracts of papers and discussions. *Elec R & W Elec'n* 67:69-75 J 1 10 '15
32d annual convention, Dear Park, Md., June 29-July 2; abstracts of papers and discussions. *Elec W* 66:6-11, 62-7 J 1 3-10 '15
306th meeting, Cleveland, Ohio, March 18-19. *Elec R & W Elec'n* 66:598-8 Mr 27 '15
314th meeting, St. Louis, Oct. 19-20. *Elec R & W Elec'n* 67:806-8 O 30 '15
- Industrial power committee**
Industrial power committee. D: B. Rushmore. *Am Inst E M Pro* 34:711-14 My '15
- American Institute of metals**
Annual convention, Atlantic City, Sept. 28-30. *Iron Tr R* 57:702-4 O 7 '15
Annual meeting, Atlantic City, Sept. 28-30. *Foundry* 43:394-7 O '15
Annual meeting, Atlantic City, Sept. 28. *Iron Age* 96:810-22 O 7 '15
Annual meeting, Atlantic City, Sept. 28-30. *Met & Chem Eng* 13:712 O 15 '15
Annual meeting, Atlantic City, Sept. 28. *Eng & Min J* 100:597 O 9 '15
Annual meeting of foundrymen and exhibition of foundry supplies and apparatus held at Atlantic City, Sept. 25-Oct. 1. *Metal Ind n* 13:401-6 O '15
- American Institute of mining engineers**
A. I. M. E. considering changes. *Eng & Min J* 98:1057-8 D 12 '14
Annual New York meeting, Feb. 15-17. *Eng & Min J* 99:377-8 F 20 '15
May the Institute endorse opinions? R. W. Raymond. *Eng & Min J* 99:205-6 Ja 23 '15
Officers, members, rules, etc. *Am Inst Min E* Bul 101:suppl-190 My '15
110th meeting, New York city, Feb. 15-17. *Met & Chem Eng* 13:177-85 Mr '15
Pittsburg meeting. *Colliery* 35:245-6 D '14
Shall the A. I. M. E. be able to express itself? Opposition's case by R. W. Raymond; Affirmative view by J. F. Kemp. *Eng & Min J* 98:1064-6 D 12 '14
- American International corporation**
Big financial concern to add foreign trade. *Ry R* 57:705 N 27 '15
Organize to promote foreign trade. *Elec W* 66:1180-1 N 27 '15
- American Iron and steel Institute**
Cleveland meeting, 1915. *Iron Tr R* 57:846-8 O 28 '15
Cleveland meeting, 1915; papers. *Iron Age* 96: 984-1005, 1025-8 O 28 '15
8th general meeting, New York city, May 28. *Iron Age* 95:1243-6+ Ja 3 '15
9th general meeting, Cleveland, Oct. 22-23. *Met & Chem Eng* 13:830-1 N 15 '15
Spring meeting, New York city, May 28. *Iron Tr R* 56:1117-18 Ja 3 '15
- American mining congress**
17th annual meeting. *W Soc M J* 19:1016-18 D '14
- American museum of natural history**
Two groups in the American museum of natural history. J. W. Griggs. *Am Sci* 112: 345 Ap 10 '15
- American museum of safety**
New York Central awarded Harriman safety medal. *Ry Age* 58:271-2 F 12 '15
- American public health association**
43d annual convention, Jacksonville, Fla., Nov. 30 to Dec. 4, 1914. *Munic J* 37:902-3 D 17 '14
43d annual meeting, Rochester, N. Y., Sept. 6-13. *Munic J* 30:483-4+ S 23 '15
Sanitary engineering section discusses refuse disposal, sewerage, water supply and methods of analysis. *Eng Rec* 70:suppl385-6 D 12 '14
- American railway association**
Fall meeting, Chicago, Nov. 18, 1914. *T. C. Frich. Ry Age* 57:1113 D 18 '14
Fall session, Chicago, Nov. 17, 1915. *Ry R* 57:648-9 N 20 '15
- American railway bridge and building association**
25th annual convention, Detroit, Mich., Oct. 19-21. *Eng N* 74:859-9 O 28 '15
25th annual convention, Detroit, Mich., Oct. 19-21. *Ry Age* 59:753-64 O 22 '15
25th annual convention, Detroit, Mich., Oct. 19-21. *Ry R* 57:516-19 O 23 '15
- American railway engineering association**
Assigned work of railway engineering association. *Eng Rec* 71:526-7 Ap 24 '15
Committee reports on electricity, ties, wood preservation, fences. *Elec Ry J* 45:570-1 Mr 20 '15
Committees; complete list of names of members appointed and subjects specified for investigation and report. *Ry Age* 58:853-5 Ap 16 '15
President's address. W. B. Storey. *Ry R* 56: 385-6 Mr 20 '15
16th annual convention, Chicago, March 16-18. *Eng Rec* 71:411-12 Mr 27 '15
16th annual convention; committee reports. *Ry R* 56:386-403 Mr 20 '15
16th annual meeting, Chicago, March 16-18. *Eng N* 73:598-9 Mr 25 '15
Year's work reviewed. *Eng Rec* 71:374-7 Mr 20 '15
- American railway master mechanics' association**
Committees. *Ry R* 57:522-3 O 23 '15
48th annual convention, Atlantic City, June 9-11. *Elec Ry J* 45:1115-17 Je 12 '15
48th annual convention, Atlantic City, June 9-11. *Ry R* 56:806-9, 847-53 Je 12-19 '15

- American railway perishable freight association**
Semi-annual meeting, Chicago, Sept. 8. Ry Age 59:513 S 17 '15
- American railway tool foremen's association**
7th annual convention, Chicago, July 19-21. Ry Age 59:193-4 J 30 '15
7th annual convention, Chicago, July 19-21. Ry Age (Mech ed) 80:409-16 Ag '15
7th annual convention, Chicago, July 19-21. Ry R 67:116-17 J 24 '15
- American road builders' association**
Abstracts of papers at the 11th annual convention held at Chicago, Dec. 14-18, 1914. Eng Rec 70:663-5 D 19 '14
5th American Good roads congress and 11th annual convention of the American road builders' association at Chicago, Dec. 14-18, 1914. Good Roads n s 9:23-29, 53-75, 96-106 Ja 2, P 6, Mr 6 '15
5th Good roads congress of the American road builders' association, 1914. Eng N 72:1277-8 D 24 '14
11th annual convention, Chicago, Dec. 14 to 18. Eng Rec 70:sup305-6 D 26 '14
11th annual convention, Chicago, Ill., Dec. 14-18. Good Roads n s 8:235-9, 247-8, 249-50; 9:1-2 D 5, 19-26 '14, Ja 2 '15
11th annual convention, Chicago, Ill., Dec. 15, 1914. H Munic J 37:233-6 D 24 '14
Report of committee on standards. Good Roads n s 9:233-9 Jo 5 '15
- American road congress, Fourth**
Meeting at Atlanta, Nov. 9-13. Concrete Cem 5:266-7 D '14
Road congress at Atlanta. Good Roads n s 8:217-20 D 5 '14
- American smelting & refining co.**
Abstract of the annual report for 1914. Eng & Min J 99:583-3 Mr 27 '15
Securities. Eng & Min J 100:364 Ag 28 '15
- American society for testing materials**
18th annual meeting, Atlantic City, N. J., June 22-26. Iron Age 96:1106 Jo 21 '15; Concrete Cem 7:13-1 J 1 '15; Eng N 74:36-41, 67-9 J 1-8 '15; Eng Rec 72:228-9 J 3 '15; Power 42:33-6 J 6 '15; Ry Age 59:81-8 J 9 '15
Fifty-three standards considered. Iron Tr R 57:37-48 J 1 '15
Testing society still grows. Iron Tr R 56:1300 Jo 24 '15
- American society of civil engineers**
American society of civil engineers on eve of important action. Eng Rec 71:574-5 My 8 '15
Needs of the society. Eng Rec 71:67 Ja 16 '15
Rules for special technical committees. Eng Rec 71:121-2 Ja 23 '15
62d annual meeting, New York, Jan. 20, 1915. Eng N 73:185-7 Ja 28 '15
62d annual meeting, New York, Jan. 20, 1915. Eng Rec 71:122 Ja 23 '15
- American society of heating and ventilating engineers**
Constitution and by-laws. Am Soc Heat & V 19 20:448-58 '14
Our society, its aims and opportunities; with discussion. J. J. Blackmore, Am Soc Heat & V 19 20:392-404 '14
Semi-annual meeting, Atlantic City, Sept. 16-17. Dom Eng 72:379-80 S 25 '15
Semi-annual meeting, Atlantic City, Sept. 16-17. Heat & Ven 12:83-9 O '15
Semi-annual meeting, Atlantic City, Sept. 16-17. Metal Work 81:14-17 S 24 '15
21st annual meeting, January 19-23, 1915. Heat & Ven 12:39-48 P '15
21st annual meeting, New York city, January 19, 1915. Metal Work 83:203-7-4 Ja 29 '15
21st annual meeting, New York city, Jan. 19-22. Dom Eng 70:144-7 Ja 30 '15
21st annual meeting, New York, Jan. 19-22, 1915. Power 41:175-8 F 2 '15
- American society of marine draftsmen**
4th annual convention, New York, April 16-17. Int Marine Eng 20:211 My '15
Object of the society and its success. Int Marine Eng 20:193 My '15
- American society of mechanical engineers**
Annual meeting in New York, Dec. 1-4, 1914. Elec Ry J 44:1248-50 D 5 '14
Fall meeting, New York, Dec. 1-4, 1914. Iron Tr R 55:1093-7 D 10 '14
- Mechanical engineers meet at San Francisco. Power 42:466-1 S 28 '15
Reports of standing committees. Am Soc M E J 37:ix-xvi D '15
San Francisco meeting, Sept. 16-17. Iron Age 96:716-7 S 30 '15
Spring meeting. H Am Soc M E J 37:v-xiii My '15
Spring meeting, Buffalo, June 22-25. Iron Tr R 67:49-50 J 1 '15
35th annual meeting, Dec. 1-4, 1914. Am Soc M E J 37:1-6 Ja '15
35th annual meeting, New York city, 1914. Eng N 72:1188-9 D 10 '14
35th annual meeting, New York, Dec. 1-4, 1914. Power 40:363-6 D 15 '14
- American society of municipal improvements**
Convention, Dayton, O. Eng N 74:810-12 O 21 '15
Dayton convention, Oct. 12-15. Munic Eng 49:189-90 N '15
22d annual convention, Dayton, O., Oct. 12-15. Munic J 39:629-32 O 21 '15
Twenty-one years of growth and activity. Munic J 39:535-9 O 7 '15
Work of society committees. Munic J 39:619-20 O 21 '15
- American society of refrigerating engineers**
10th annual meeting, New York, Nov. 30 and Dec. 1. Power 40:866-7 D 15 '14
- American society of sanitary engineering**
10th annual meeting, San Francisco, August 9-11. Dom Eng 70:262-3 Ag 28 '15
10th annual meeting, San Francisco, August 9-11. Metal Work 81:318-20 S 3 '15
- American supply and machinery manufacturers' association**
Annual convention, Philadelphia, June 3-1. Iron Age 95:1290-3 Jo 10 '15
- American telephone & telegraph co.**
Annual report. Elec N 66:753-4 Mr 20 '15
Annual report for the year ended December 31, 1914. Elec R & W Elec'n 66:532-3 Mr 20 '15
- American uniform boiler law society**
Promulgation of the boiler code. Am Soc M E J 37:ix-xx D '15
- American water works association**
Constitution and list of members. Am Water Works Assn J Sup 1:1 91 D '14
Constitution and list of members, June, 1915. Am Water Works Assn J Sup 2:1 104 Jo '15
35th annual convention, Cincinnati. Eng Rec 71:663-6 My 22 '15
35th annual convention, Cincinnati, May 10-14. Am Water Works Assn J 2:239-317 Jo '15
35th annual convention, Cincinnati, May 10-14. Eng N 73:1000-1 My 20 '15
35th annual convention, Cincinnati, May 10-14. Munic J 38:706-8 My 20 '15
Water works co-operation. C. C. Earl. Eng N 73:999-1000 My 20 '15
- American wood preservers' association**
Abstracts of papers presented at the 11th annual convention, Chicago, Jan. 19-21. Eng Rec 71:106-8, 144-5 Ja 23 '15
11th annual convention, Chicago, Jan. 19-21. Elec Ry J 45:181-2 Ja 23 '15
11th annual convention, Chicago, Jan. 19-21, 1915. Eng N 73:182-3 Ja 28 '15
11th annual convention, Chicago, Jan. 19-21, 1915. Ry R 66:115-17 Ja 23 '15
11th annual convention, Chicago, Jan. 19-21, 1915. Abstracts of papers and discussions. Ry Age 64:154-63 Ja 23 '15
Modifications made in committees' recommendations. Elec Ry J 45:237 Ja 20 '15
Wood preservers open ranks to young men. Eng Rec 71:155-6 Ja 30 '15
- Amides**
Periodic acid amides and their addition products with metallic salts; substances of exceptionally high molecular weight. F. J. Moore and L. M. Thomas. Am Chem Soc J 36:1928-37 M '14
Reactions in liquid ammonia. E. C. Franklin. Am Chem Soc J 27:2279-95 O '15

Amino acids

Quantitative determination of the amino acids of feeding-stuffs by the Van Slyke method. H. S. Grindley, W. E. Joseph and M. E. Slater. *Am Chem Soc J* 37:1778-81 J1 '15

Amino nitrogen

Total amino nitrogen in the seedlings of the Alaska pea. T. G. Thompson. *Am Chem Soc J* 37:230-5 Ja '15

Ammeters

Meaning of alternating-current ammeter readings. W. S. Franklin. *diags Elec W* 64:1112 D 5 '14

Proper use of ammeter and voltmeter in the plating room. *Metal Ind n* 13:87-8 F '15

Voltmeter and ammeter in the plating room. S. E. Huenerfauth. *Metal Ind n* 13:71 F '15

See also Ampere-hour meters

Ammonia

Ammonia, a heat vehicle. A. Johnson. *Power* 41:727 My 25 '15; Same. *Sci Am S* 80:55 J1 24 '15

Ammonia explosions in refrigerating plants; abstract. G. Cataneo. *Am Soc M E J* 37:344-5 Je '15

British producer-gas and ammonia-recovery plant. *diags Met & Chem Eng* 13:456-8 J1 '15

Carbonization in bulk—Koppers' ovens. C. J. Ramsburg. *Il diag Am Gas Inst Pro* 9:pt 1, 594-601 '14

Coal gas residuals—Fold process. F. H. Wagner. *diags Am Gas Inst Pro* 9:pt 1, 340-61 '14; Same cond. *Am Gas Light J* 101:307-9 N 16 '14; Same cond. *Met & Chem Eng* 12:699-702 N '14; Same cond. *Sci Am S* 80:318-19 N 13 '15; Discussion. *Am Gas Inst Pro* 9:pt 1, 361-7 '14

Decomposition of ammonia and the chances of explosions. F. L. Fairbanks. *Power* 42:715-17 N 23 '15

Determination of ammonia in soils. R. S. Potter and R. S. Snyder. *Il J Ind & Eng Chem* 7:221-6 Mr '15

Explosion of ammonia vapor. *Am Gas Light J* 102:91 F 8 '15

Extracting ammonia. *diag Am Gas Light J* 103:145 S 6 '15

Initial charge with anhydrous. H. G. Gibson. *Power* 42:681 N 16 '15

New apparatus for the manufacture of aqua ammonia from raw gas liquor. E. W. Hilgenstock. *Il diag Am Gas Light J* 103:241-3 O 18 '15

Precipitant for ammonia. S. S. Graves. *Am Chem Soc J* 37:1171-81 My '15

Reactions in liquid ammonia. E. C. Franklin. *Am Chem Soc J* 37:2279-95 O '15

Vapor pressures of acetylene, ammonia and isobutane at temperatures below their normal boiling points. G. A. Burrell and I. W. Robertson. *Am Chem Soc J* 37:2482-6 N '15

Ammonia compressors

Ammonia compressor alarm. G. A. Robertson. *Power* 41:815 Je 15 '15

Ammonia diagrams. *Power* 40:330; 41:204 D 29 '14, F 9 '15

Effect of superheated ammonia on compressor capacity. H. R. Howell. *Power* 42:646-7 N 9 '15

Equipment and methods in largest refrigeration system. C. H. Bromley. *Power* 40:843-4, 878-83 D 15-23 '14

Gaskets for plugs of compressor valves. A. G. Solomon. *Power* 41:61 Ja 12 '15

Incorrect diagrams from compressor. F. V. Larkin. *Power* 41:415 Mr 23 '15

Massachusetts ammonia safety regulations. F. L. Fairbanks. *diags Power* 42:753-6 N 30 '15

Overhauling the ammonia compressor. F. E. Matthews. *Power* 42:479-81 O 5 '15

Power requirements of ammonia compressors. W. N. McKee. *Power* 41:158-60 F 2 '15

Ammonia condensers

Cleaning ammonia condensers. A. G. Solomon. *Power* 42:761-2 N 30 '15

Purging ammonia condensers. C. O. Sandstrom. *Power* 42:311-12 Ag 31 '15

Purging ammonia condensers. G. A. Robertson. *diag Power* 42:15 J1 6 '15

Removing scale from ammonia condensers. A. G. Solomon. *Power* 42:34-5 J1 20 '15

Ammonium chloride

Effect of ammonium chloride upon ferric and aluminum hydroxides during ignition. H. W. Daudt. *J Ind & Eng Chem* 7:847-8 O '15

Mixed crystals of ammonium chloride with manganese chloride. H. W. Foote and B. Saxton. *Am Chem Soc J* 36:1695-1704 Ag '14

Ammonium citrate

Tri-ammonium citrate. R. A. Hall. *Am Chem Soc J* 37:208-16 Ja '15

Ammonium halides

Densities and degrees of dissociation of the saturated vapors of the ammonium halides, and the related thermal data. A. Smith and R. H. Lombard. *Am Chem Soc J* 37:38-70 Ja '15

Ammonium hydroxide

Behavior of ammonium phosphomolybdate with ammonium hydroxide. P. B. Sircar. *Am Chem Soc J* 36:2372-4 N '14

Electrochemical oxidation of hydrazine sulfate and ammonium hydroxide. J. W. Turrentine and J. M. Olin. *Am Chem Soc J* 37:1114-22 My '15

Use of ammonium hydroxide for the extraction of rosin from wood. H. K. Benson and H. N. Crites. *J Ind & Eng Chem* 7:918-20 N '15

Ammonium oxalate

Thorium ammonium oxalate. C. James, C. F. Whittenore and H. C. Holden. *Am Chem Soc J* 36:1853-6 S '14

Ammonium phosphomolybdate

Behavior of ammonium phosphomolybdate with ammonium hydroxide. P. B. Sircar. *Am Chem Soc J* 36:2372-4 N '14

Ammonium salts

Neutral ammonium salts of some substituted benzoic acids. L. McMaster and I. H. Godlove. *Am Chem Soc J* 37:2181-8 S '15

Study of the preparation and properties of the ammonium salts of organic acids. L. McMaster. *Am Chem Soc J* 36:1916-25 S '14

Valence of nitrogen in ammonium salts. W. A. Noyes and R. S. Potter. *Am Chem Soc J* 37:189-203 Ja '15

Ammonium sulphate

Discoloration of sulphate of ammonia. *Am Gas Light J* 102:92-3 F 8 '15

Production of sulphate of ammonia in 1914. *Am Gas Light J* 103:161-4 S 13 '15; Same cond. *Met & Chem Eng* 13:638-9 S 15 '15

Quality of sulfate of ammonia for export. *J Ind & Eng Chem* 7:160 F '15

Ammunition

Ammunition and finance in the present war. *Sci Am* 112:604 Je 19 '15

Ammunition components, United States army—principle dimensions and general specifications. *Iron Age* 96:sup358a Ag 12 '15

Cost of munitions of war. *Mach* 21:405 Ja '15

Field artillery and ammunition. G. B. Jewell. *Il diags Eng M* 49:698-711 Ag '15

Gun-primers and detonators. *Sci Am S* 80:35 J1 17 '15

Safe transportation of small-arms ammunition. *Il Sci Am* 112:589-90 Je 12 '15

See also Bullets; Explosives, Military; Gunpowder; Projectiles; Shells; Shrapnel shells

Amole

Amole for laundering woolen goods. *Sci Am* 112:49 Ja 9 '15

Amorphous substances

Killing system in the chemistry of amorphous substances. W. K. Lewis. *Met & Chem Eng* 13:321 D 1 '15

Ampere-hour meters

Ampere-hour meters on the Annapolis short line. *Elec Ry J* 45:728-3 Ap 10 '15

Mercury-type ampere-hour meter. *Il Elec W* 66:1164 N 20 '15

Meter results on Chicago & Milwaukee line. *Il diag Elec Ry J* 45:973-6 My 25 '15

New ampere-hour meter for electrolytic works and refineries. *Il Met & Chem Eng* 13:191 Mr '15

Amperesand

Use of the amperesand, or short sand. J. L. Frazier. *Inland Ptr* 54:861-3 F '15

Amphibia

Rare amphibians at the New York zoological park. R. L. Ditmars. *Il Sci Am S* 80:196 S 26 '15

Amphitheaters. See *Sindia*

Amylase

Comparison of certain properties of pancreatic and malt amylase preparations. H. C. Sherman and M. D. Schlesinger. *Am Chem Soc J* 37:1305-19 My '15

Further experiments upon the purification of malt amylase. H. C. Sherman and M. D. Schlesinger. *Am Chem Soc J* 37:643-8 Mr '15

Influence of certain acids and salts upon the activity of malt amylase. H. C. Sherman and A. W. Thomas. *Am Chem Soc J* 37:633-43 Mr '15

Anaglyphs

Anaglyphs. *Sci Am* 113:68 J1 17 '15

Analoid method

Analoid method for the determination of manganese in steel, iron ore and slag. Met & Chem Eng 12:793-4 D '14

Analoid method for the determination of phosphorus in steel, iron and slag. Met & Chem Eng 13:191-2 Mr '15

Analysis of food. See *Food Analysis*

Anchor

Foundations for transmission line towers and tower erection; transmission tower steel anchors set in earth. J. E. Loeper. *Il Am Inst E E Pro* 34:1179-86 Jo '15; Abstract. *IEEE W* 66:9-10 J1 3 '15

Torsional strengths of guy anchor rods. T. Croft. *diag IEEE W* 65:1607-9 Jo 19 '15

Anemometer

Best way to take anemometer readings; committee report. *Am Soc Heat & V E* 19:207-7 '13

Calibration of anemometers. D. A. Hackett. *Colliery* 36:66-7 S '15

Anesthetics

Apparatus for mechanical administration of anesthetics. *Il Sci Am* 113:471 P N 27 '15

Nature our most available and reliable ally. W. H. Hadden. *Sci Am* 113:309 Ap 3 '15

Rate of evaporation of ether from oils and its application in oil-ether colonic anesthesia. C. Backerville. *J Ind & Eng Chem* 7:868-70 O '15

Twilight sleep in the light of day. *Sci Am S* 79:112 P 13 '15

Angle-sheave frames

Design of angle-sheave frames. F. L. Burr. *Eng & Min J* 99:359-64, 403-8 P 20-27 '15

Angle trisection. See *Trisection of angles*

Angles

Chords of angles from one to ninety degrees. S. L. Cook. *Foundry* 43:416a O '15

Anhydrite

Occurrence of anhydrite in the United States. A. P. Rogers. *Il Sch Mines Q* 36:123-42 Ja '15

Anhydrous hydrazine. See *Hydrazine*

Aniline

Testing aniline oil and salt. L. J. Maton. *diag Textile World* 49:566-6 Ag '15

Aniline colors. See *Coal-tar colors*

Animal charcoal

Absorption of glucose by bone-black. H. A. Morton. *Am Chem Soc J* 38:1832-8 M '14

Animal intelligence

Recent experiments on vision in animals. H. M. Johnson. *Illust Illum Eng Soc* 10: 502-14 no 8 '15

Thinking animals. *Sci Am S* 70:119 P 20 '15

Visual pattern-discrimination in the vertebrates; difference-threshold for band-width in the monkey and the domestic chick. H. M. Johnson. *J Ex Inst* 180:238-40 Ag '16

Animal products

See also *Eggs; Meat*

Animals, Habits and behavior of

Study of animal and human behavior. L. K. Birchberg. *Il Sci Am* 113:491-2 My 29 '15

Animals, Treatment of

Animal life in a zoo. A. Pope. *Il Sci Am* 113:385 P Ap 21 '15

Annapolis short line

From a.c. to d.c. in the night. *Il diag IEEE* 16:131 J 46:542-50 Mr 20 '15

Annealing

Annealing brass for forming and drawing operations. H. W. Dunbar. *Il Mach* 21:660-1 Mr '15

Annealing car wheels. W. J. Keep. *Foundry* 43:187-8 My '15

Annealing effect on light gray iron castings. G. S. Evans. *Il Foundry* 43:219-21 Jo '15

Annealing gray iron castings. *Il Foundry* 43: 188 My '15

Annealing of brass. P. Johnson. *Il Metal Ind* n 8 13:65-7 P '15

Annealing of brass cartridge cases. L. J. Krom. *Il diag Metal Ind* n 5 13:39-63 S '15

Annealing oven for brass. W. E. Grum (Grand-malle). *diag Iron Age* 94:1397 D 17 '14

Care of chime. *Eng & Contr* 14:250 1 S 22 '15

Electric annealing furnaces. *Iron Age* 35:1017 My 6 '15

Importance of annealing steel castings. *Iron Age* 36:178-30 J1 15 '15

Industrial uses of gas. H. M. Thornton. *Il Am Gas Light J* 103 19 J1 12 '15

Recommended practice for the annealing of carbon steel castings. *Foundry* 43:102a Mr '15

Reinforced annealing box. *diag Iron Tr R* 37: 415 S 2 '15

Research in annealing malleable castings. O. W. Storey. *Il Foundry* 43:148 D 14 '14

Scale burnt malleable castings. R. Molendae. *Foundry* 43:323 S '15

See also *Glaze; Steel*

Announcements (printing)

Announcements and invitations. *Island Pir* 55:555a-556b Ag '15

Annuities

Annuities and bond discount. O. A. Syder. *J Account* 20:293 L 3 '15

Annuities and bond discount. R. J. Bennett. *J Account* 19:105-24 Jo '15

Antennas. See *Wireless telegraph*

Anthracite coal. See *Coal*

Anthraquinone

Separation of mono-, di-, and tri-sulfonic acids of anthraquinone. M. L. Crossley. *Am Chem Soc J* 37:2158-61 J1 '15

Anthropogeography

Problems of geographic influence. A. P. Brigham. *Sci Am S* 79:351, 36-10 J1, 19, 25-9 Jo 12, J1 3 17 '15

Anthropology**Exhibitions**

Man's development illustrated at San Diego; busts depict the earliest known human beings. A. H. Wright. *Il Sci Am S* 80:557 N 20 '14

Anthropometry

Scientist and the athlete, the physiological laboratory of the French military school at Joinville. J. Meyer. *Il Sci Am S* 79:227 My 8 '15

See also *Identification*

Anti-dumping law. See *Tariff; Tariff Canada*

Antimony

Antimony mining in Bolivia. *Eng & Min J* 100:790 N 13 '15

Antimony production of the world. *Eng & Min J* 100:777-8 Ag 14 '15

Electrolytic antimony refining. A. G. Hetta. *Met & Chem Eng* 13:818-21 N 15 '15

Use of hydrofluoric acid in the separation of copper and lead from tin and antimony by means of the electric current. L. W. McVay. *Am Chem Soc J* 38:237b-81 N '14

See also *Jamennite*

Antipyrin

Estimation of caffeine and antipyrin in admixture. W. O. Emery and N. Palkin. *J Ind & Eng Chem* 7:512-21 Jo '15

Antiseptics

New surgical antiseptic; hypochlorites. Sci Am 113:164 Ag 21 '15

Quinine in the treatment of gaseous gangrene. K. Taylor. Sci Am S 80:242-3 O 16 '15

See also Disinfection and disinfectants

Apartment houses

Apartment house, 11 East Chase street, Baltimore, Md.; views and plan. Brickb 24:pl 120 Ag '15

Apartment house, 405 Park avenue, New York; views and plans. Brickb 24:pl 61-3 My '15

Apartment house, North street, Buffalo; views and plans. Brickb 24:pl 99-100 JI '15

Competition for a two-apartment house. 11 plans Brickb 24:203-6 Ag '15

Craig apartments, 58th street and Monroe avenue, Chicago, Ill.; view and plans. Brickb 24:pl 97-8 JI '15

Four-family house of stucco finish. 11 plan Bldg Age 87:29-30 Ag '15

Popular bungalow-court idea; layout and description of St. Francis court at Pasadena, Cal. C. A. Byers. 11 diag plans Bldg Age 37:19-22 Ap '15

Semi-detached four-family house. 11 plans Bldg Age 37:42-4 JI '15

World's costliest apartments. plan Bldg Age 37:68-9 Je '15

See also Duplex houses

Apex law. See Mining laws**Apple syrup**

Apple syrup and concentrated cider. Sci Am S 80:78-9 JI 31 '15

Appraising. See Valuation**Apprentices**

Apprentice system at the Lynn works of the General electric company. T. Bodde. Gon Elec R 18:35-7 Ja '15

Apprentice work in steel plants. B. W. Gilson. Iron Tr R 55:1138-4 D 17 '14

Brown & Sharpe apprenticeship system. Iron Age 96:440 Ag 19 '15

Does modern apprenticeship pay? I. L. Park. Ry Age (Mech ed) 80:248 My '15

Educating sheet metal workers' apprentices. O. M. Cluss. Metal Work 83:827 Je 4 '15

Helping the apprentice. H. J. Blackburn. Ry Age (Mech ed) 89:582-3 N '15

How can you help the apprentice? prize letter and others received in competition. Ry Age (Mech ed) 89:531-2 O '15

Start the apprentice right. Ry Age (Mech ed) 89:585-6 N '15

Training for the industrial side of engineering. A. P. M. Fleming. Inst 19 J 53:566-73; Discussion. 53:574-86 Ap 15 '15

Training the apprentice. H. Hillman. 11 Inland Ltr 55:820-2 S '15

Training the master plumber's apprentice. W. A. Fink. Metal Work 83:888-9; 84:30-1 Je 18, JI 2 '15

Works apprentice school discontinued. Iron Age 96:1834-5 Je 17 '15

See also Corporation schools; Industrial education; Schools and shops, Cooperation of

Aquariums

Aquarium and winter house for birds for the city of Boston. W. D. Austin. 11 plans Brickb 24:47-50 F '15

Collections of the New York aquarium. R. W. Shufeldt. 11 Sci Am S 80:52-3 JI 24 '15

Aqueducts

Bradford waterworks. 11 plan maps Engineer 119:251-4, 278-80 Mr 12-19 '15

Construction features of the Greater Winnipeg water works. J. H. Fuertes. diag Eng & Contr 44:1377-80 N 10 '15

Curves on Winnipeg aqueduct built with straight sections of forms. 11 diag Eng Rec 72:557-8 N 27 '15

Design and construction of the new supply conduit (Nepaug) of the Hartford, Conn., water works. C. M. Saville. Eng & Contr 43:23-6 Ja 13 '15

Direct control over construction materials is feature of 100-mile Winnipeg aqueduct. 11 Eng Rec 71:594-6 My 8 '15

Hydrostatic catenary flume on a concrete aqueduct. H. B. Muckleston. 11 diag map Eng N 74:58-63 JI 8 '15

Method and cost of making test borings for the Winnipeg Shoal lake aqueduct. D. L. McLean. 11 diag Eng & Contr 43:316-18 Ap 7 '15

Progress on the Greater Winnipeg aqueduct. 11 Eng N 73:230-1 F 4 '15

Roman aqueduct near Tarragona, Spain. J. R. Rippey. 11 diag Eng N 74:61 JI 8 '15

See also Catskill aqueduct; Los Angeles aqueduct

Cost

Unit bidding prices of contractors awarded construction of 85-mile concrete aqueduct, Winnipeg, Man. Eng & Contr 42:sup32 O 21 '14

Aquitania (steamship)

Electricity on board ship. J. Lowson. Elec R & W Elec N 65:1189 D 19 '14

Aramean language

How we got our alphabet. W. Rice. Inland Ptr 54:508-9 Ja '15

Arbitration, industrial

Arbitration award in enginemen's wage controversy; text. lty Age 58:962-5 My 7 '15

Arbitration of Albany strike. Elec Ry J 46:460 S 11 '15

Arbitration of western engineers' and firemen's demands. lty Age 57:1043-4, 1084-5, 1123-4; 58:97-8, 125-7, 198-200, 232-4, 264-6, 307-10, 383-5, 409-11, 448, 751-2 D 4-18 '14, Ju 15-Mr 12, Ap 2 '15

Award of arbitrators in the western wage controversy. lty R 56:524-5 My 8 '15

Bay State street railway arbitration. Elec Ry J 45:708-10, 854, 1019-21, 1205-6 Ap 10, My 1, 29, Je 26 '15

Chicago arbitration. Elec Ry J 45:1128; 46:34, 75-6 Je 12, JI 3-10 '15

Chicago arbitration award. Elec Ry J 46:118 JI 17 '15

Chicago's two-day strike. Elec Ry J 45:1165-8 Je 19 '15

Disturbance over the western arbitration. Ry Age 58:959-60 My 7 '15

Employees receive increase in Chicago. Elec lty J 46:146-9 JI 24 '15

Holyoke arbitration. Elec lty J 46:883 O 23 '15

Industrial mediation and conciliation. J. Kruttschnitt. Ry Age 56:836-7 My 8 '15; Excerpts. Ry Age 58:1126-7 My 28 '15

Joliet, Ill., arbitration decision rendered. Elec Ry J 46:1003 N 13 '15

Labor and arbitration. Elec Ry J 46:174-5 JI 31 '15

Public regulation of wages of railway employees. F. H. Dixon. Ry Age 58:920-32 Ap 30 '15

Rhode Island wage arbitration. Elec Ry J 46:903-5 O 30 '15

Syracuse arbitration. Elec Ry J 45:999 My 22 '15

See also Labor and capital

Arbitration and award

Arbitration provision for building contracts. M. T. Thurston. Eng & Contr 43:199 Mr 3 '15

Arc, Electric. See Electric arc**Arc lamps. See Electric lamps, Arc**

Arc phenomena. A. G. Collins. 11 diag Am Inst B 19 Ltr 34:2081-2100 S '15

Arched bridges. See Bridges, Arched**Archeology**

Ancient relics unearthed in war trenches. 11 Sci Am 113:342 O 16 '15

Curiosities of bygone ages: relics from New Mexico and from Bible lands. 11 Sci Am 112:87-4 Ja 23 '15

See also Inscriptions; Monuments; Temples

Arches

Arched reinforced-concrete conduits designed by the theory of least work. W. M. Smith. Eng Rec 71:648-52 My 22 '15

Arching in collories. R. G. Clark. diag Colliery 25:292-6 Ja '15

Design methods in concrete construction—arches with fixed ends. A. M. Wolf. diag Concrete Cem 7:137-44 O '15

Arches—Continued

- Discussion of the essentials of design of reinforced arch structures, diagz Concrete Cem 5:239-41 D '14
- Field methods in concrete construction arch centers; design and construction, J. Cochran, Concrete Cem 7:107-10 S '15
- First reinforced concrete arch in America, J. W. Pearl, diag Concrete Cem 7:15-6 Ag '15
- Graphical analysis of arches with fixed ends greatly simplified, C. S. Whitney, Eng Rec 72:324-6 S 11 '15
- Lake Erie & Eastern R. R.; concrete arch at Mahoning avenue, Youngstown, II plan R 57:134-5 J1 31 '15
- Method for determining two-hinged arch reactions, C. S. Whitney, Eng & Contr 44:123-4 Ag 18 '15
- Reinforced-concrete conduit analysis simplified by theory of displacements, C. S. Whitney, Eng Rec 72:486-8 O 16 '15
- Simple method of determining the stresses in concrete arches due to temperature and rib shortening, H. R. Thayer, Eng & Contr 41:173-4 S 1 '15
- Theory of the arch in mining, H. S. Randolph, Colliery 35:427-9 Mr '15
- See also Architecture; Bridges; Arched; Culverts; Strains and stresses

Architects

- Architect and the client, O. La Forge, Am Inst Arch J 2:557-9 D '14
- Architect and the public, W. L. Steele, Am Inst Arch J 3:492-5 N '15
- Architect's part in the world's work, F. L. Ackerman, Arch Rec 37:149-58 F '15
- As he is known, being brief sketches of contemporary members of the architectural profession, perz Brickh 24:25-6 Ja '15
- Circular of advice relative to principles of the professional practice and the canons of ethics of architects, Am Inst Arch J 3:103 Mr '15
- Flye orders of architects, Bldg Age 37:311 J1 '15
- Professional and other incompetence, Am Inst Arch J 3:73-5 F '15
- Relation of the architect and the engineer, D. D. Kimball, Heat & Vent 12:13-18 Mr: 26-30 Ap '15
- See also Burnham, D. H.; Vaudremer, Emile; Ware, W. R.

Fees

- Fees: a reductio ad absurdum, T. Thumtack, Arch & Bldg 44:418-20 N '14

Law

- Admission to practice; the proposed law in Victoria, New South Wales, Am Inst Arch J 3:40-1 Ja '15
- Architects as independent contractors, A. L. H. Street, Bldg Age 37:64-5 N '15
- Right to lien for plans not used, A. L. H. Street, Bldg Age 37:67-8 Mr '15
- See also Architects—Licenses

Licenses

- Architects' license law in Illinois, Eng N 73:500-1 Mr 11 '15
- Architects' license law in Illinois, A. Allen, Eng N 73:644-5 Ap 1 '15
- Architects must be registered in New York, Eng Rec 71:706 Je 6 '15
- Architects versus engineers; Illinois engineers win fight for legal recognition, Assn Eng Soc J 54:277-99 Je '15
- Effect of architects' license laws upon engineers, Eng N 73:332-3 F 25 '15
- Illinois law admitting to practice defended, F. B. Wight, Am Inst Arch J 3:87-8 F '15
- Registration and licensing of architects, Am Inst Arch J 2:575-7 D '14
- Registration law aims solely at raising professional standards, D. E. Wald, Eng Rec 71:743 Jo 12 '15
- Report of the Illinois state board of examiners of architects, F. M. Barton, Eng & Contr 42:411-12 O 28 '14
- Architectural acoustics, See Acoustics, Architectural

Architectural competitions, See Architecture - Competitions

Architectural draughtsmen; John Ruskin, II; Winslow, II Am Inst Arch J 3:106 20 O '15

Architectural draughtsmen; Richard Parkes Bonington, II; Winslow, II Am Inst Arch J 3:159-67 Ap '15

Architectural drawing

Elementary perspective drawing, G. W. Rutledge, II Bldg Age 37:30-2 Ap, 31 3 My, 21-6 Je; 25-8 J1; 21-6 Ar; 35-8 S; 32-1 O '15 (to be cont)

See also Architectural rendering; Architecture Details; Blue prints; Mechanical drawing

Architectural education

American schools of architecture, E. R. Rossmore, Am Inst Arch J 3:106 12 Mr '15

Education, C. C. La Forge, Am Inst Arch J 3:119-20 Mr '15

Architectural ironwork, See Ironwork, Architectural

Architectural rendering

Comparison of French, English, and German work, II Brickh 23:301 4 D '14

Architectural societies

First architectural society in America, R. W. Haddon, Arch Rec 38:77 S Ar '14

Architecture

Art through the emancipation of the workman, R. A. Crum, Am Inst Arch J 3:217 3 Je '15

Battle with chaos, the architectural side of city planning, F. L. Ackerman, Am Inst Arch J 3:111 7 O '15

Concrete; a medium of aesthetic expression, L. R. Pond, Concrete Cem 6:119-20 Mr '15

Dead hand in architecture (Mobile contact, R. F. Bach, Brickh 21:163 3 Je '15

Influence on architecture of the condition of the worker by T. S. Atiles, Review by F. L. Ackerman, Am Inst Arch J 2:45 5 D '14

Point of view in approaching the study of architecture, C. H. Tobie, Am Inst Arch J 3:290 2 My '15

See also Acoustics, Architectural; Arched; Architects; Architectural drawing; Architectural rendering; Arched; Art Galleries; Auditoriums; Bank buildings; Bathing; Public; Bridge ports; Clubs; Buildings; Building material; Buildings; Capital buildings; Castles; Cellars; Chimneys; Church architecture; Clubhouses; College architecture; Color in architecture; Columns; Concrete construction; Concocted houses; Corners; Decoration and ornament; Domes; Doors; Drawings; Factories; Farm buildings; Fireplaces; Fireproof construction; Floors; Foundations; Fraternity houses; Garages; Gateways; Grain elevators; Greenhouses; Gymnasiums; Heating; High buildings; Hospitals; Hotels; Industrial buildings; Ironwork; Architectural; Lobbies; Architecture; Lodges; Loft buildings; Machine shops; Market buildings; Marquise (architecture); Masons; Foundations; Masonry; Mills and millwork; Monuments; Moving picture theaters; Multistoried buildings; Mural painting and decoration; Naval architecture; Newspaper offices; Office buildings; Partitions; Pergolas; Plumbing; Printing offices; Public comfort stations; Railroads; Railroads; Buildings; Railroads; Stations; Garages; Schoolhouses; Street metal work; Architectural; Stairs; Stairways; Steel construction; Store fronts; Strains and stresses; Strength of materials; Tea rooms and tea houses; Temples; Theaters; Tiles; Towers; Towers; Ventilation; Walls; Warehouses; Windows; Young women's Christian association buildings

Bibliography

Books on medieval architecture, R. F. Bach, Arch Rec 37:474-8, 523-4 My Je '15

Current index of architectural literature, New monthly numbers of Journal of the American Institute of architects

Architecture—Continued**Competitions**

School building in Michigan and Connecticut. Am Inst Arch J 3:437-8 O '15

Society of Beaux-arts architects: awards. See monthly numbers of Journal of the American institute of architects

Contracts

See Building contracts

Designs and plans

Work of Burnham & Root, D. H. Burnham, D. H. Burnham & co. and Graham, Burnham & co. A. N. Reber. Il plans Arch Rec 38:32-168 J1 '15

Details

Early American architectural details: Tucker-llice porch, Salem, Mass. Brickb 24:pl 1 Ja '15

Villa Madama: text and measured drawings by Howard W. Germann. Il Arch Rec 37:26-47 Ja '15

See also Ceilings; Doorways; Stairways

Study and teaching

See Architectural education

Belgium

Architect's impressions in Belgium. E. T. Richmond. Il Am Inst Arch J 3:153-8 Ap '15
Belgium and some of its buildings. J. Y. Dunlop. Il Bldg Age 37:33-6 Ap '15

Destruction of architectural monuments in Belgium. R. A. Craun. Am Inst Arch J 3:185-6 Ap '15

Report of a German commission upon the destruction of architectural monuments in Belgium. R. D. Kohn. Am Inst Arch J 3:130-2 Mr '15

France

Jean Louis Pascal—Institute gold medalist, 1913. W. Cook. Il Am Inst Arch J 3:19-26 Ja '15

Germany

Modern German architecture. J. K. Pond. Il Brickb 24:213-16, 243-7 S-O '15

Great Britain

Monumental classic architecture in Great Britain and Ireland during the 18th and 19th centuries by A. M. Richardson. Review by J. G. Howard. Am Inst Arch J 3:27-9 Ja '15

Mexico

Phases of Spanish colonial architecture. M. Wilcox. Il Arch Rec 37:535-46 Je '15

Peru

Phases of Spanish colonial architecture. M. Wilcox. Il Arch Rec 37:535-46 Je '15

Spain

Some old and unfamiliar Spanish buildings. A. C. Ilyne. Il Brickb 23:58-61, 106-9, 226-9, 249-52; 24:43-6, 85-8 Mr, My, S-O '14, F, Ap '15

United States

Work of Burnham & Root, D. H. Burnham, D. H. Burnham & co. and Graham, Burnham & co. A. N. Reber. Il plans Arch Rec 38:32-168 J1 '15

See also Architecture, Colonial; Architecture, Domestic—United States

Virginia

Early architecture of the Rappahannock valley; Cleve manor. F. C. Baldwin. Il diag plan Am Inst Arch J 3:234-40 Je '15

Early architecture of the Rappahannock valley; Gay Mont and Belle Grove. F. C. Baldwin. Il diag plans Am Inst Arch J 3:328-30 Ag '15

Early architecture of the valley of the Rappahannock; Kenmore. F. C. Baldwin. Il plan Am Inst Arch J 3:113-18 Mr '15

Architecture, American. See Architecture—United States; Architecture, Colonial

Architecture, Ancient

Mysterious Babel, whose magnificent temples show the hands of many ages and nations. Mrs. T. L. LePage. Il Sci Am S 78: 407-10 D 26 '14

Architecture, Colonial

Colonial architecture in Connecticut. W. S. Bessell. Il diag Arch Rec 37:360-9, 445-52, 547-56; 38:672-80 Ap-Je, D '15

Early architecture of the valley of the Rappahannock. F. C. Baldwin. Il diag plans Am Inst Arch J 3:113-18, 234-40, 328-36 Mr, Je, Ag '15

Modern colonial doorways. D. Griswold. Il Arch Rec 38:246-52 Ag '15

Seventeenth century New England house at Topsfield, Mass. D. Millar. Il plans Arch Rec 38:348-61 S '15

Stairways in houses of moderate cost; colonial type of stairway. J. T. Fallon. Il diag plans Brickb 24:169-63 J1 '15

Three types of Georgian architecture: the evolution of the style in Philadelphia. H. D. Thorleim. Il diag Arch Rec 37:169-76 F '15

Bibliography

Books on colonial architecture. R. F. Bach. bibliog Arch Rec 38:281-6, 379-82, 592-4, 690-3 Ag-S, N-D '15 (to be cont)

Architecture, Domestic

Trend of modern home building; tendency toward fireproof construction. Il plans Bldg Age 37:71-2 1 '15

See also Apartment houses; Bungalows; Chimney clocks; Concrete houses; Cottages; Country houses; Doorways; Duplex houses; Farm buildings; Farmhouses; Fireplaces; Fraternity houses; Heating; House decoration; Housing problem; Lodges; Plumbing; Stairways; Stucco; Window seats

Designs and plans

Architect's country house; residence of Elettus Litchfield, New Canaan, Conn. J. T. Bottomley. Il diag Arch Rec 37:48-63 Ja '15

Architectural design as an aid to real estate promotion; principles of group planning applied to small suburban houses, Jamaica, L. I. G. H. Irving. Il plans Brickb 23:295-6, pl 191-2 D '14

Attractive home for the suburbs. Il diag plans Bldg Age 37:19-28 F '15

Country house architecture in the East. M. D. Litchfield. Il plans Arch Rec 38:452-88 O '15

Country house architecture in the middle West. P. B. Wight. Il plans Arch Rec 38: 385-421 O '15

Country house architecture on the Pacific coast. L. C. Mulgardt. Il plans Arch Rec 38:423-51 O '15

Country house built of concrete. Il diag plans Bldg Age 37:42-4 F '15

Country house with clapboard walls. Il diag plans Bldg Age 37:43-5 Ja '15

Country house with stucco walls. Il diag plans Bldg Age 37:42-5 Mr '15

Design for a six-room country house. Il diag Bldg Age 37:42-5 D '15

Double house for a 50 ft. lot. Il plans Bldg Age 37:42-4 N '15

Ellen Wilson memorial homes to be erected at Washington, D. C. G. B. Ford. Il plans Am Inst Arch J 3:352-7 Ag '15

Examples of the work of Otis & Clark. H. Croly. Il plans Arch Rec 37:385-409 My '15

Five-room stucco finished cottage. Il plans Bldg Age 37:42-5 O '15

Hollow tile house with shingle roof. Il diag plans Bldg Age 37:42-5 My '15

House at Jamestown, N. Y. Il plans Arch & Bldg 47:268 J1 '15

House of N. P. Hollowell, Esq., Readville, Mass., house of Miss M. Watson, Gedney Farms and others; views and plans. Brickb 23:pl 185-90 1 '14

House of S. W. Labrot, Esq., Annapolis, Md. Brickb 24:pl 121-3 N '15

Houses of Charles A. Cass, Ardley Park, N. Y. and G. S. Mandell, Hamilton, Mass. Brickb 24:pl 8-13 Ja '15

Houses of Charles Paxton, Lake Forest, Ill., and others. Brickb 24:pl 76-85 Je '15

Architecture, Domestic - Designs—Continued

- Houses of Guilford, Baltimore, Md.; views and plans Brickb 24:223-7, pl 124-35 S '15
- Houses of James Parneelee, Washington, D. C., and others, Brickb 24:pl 66-76 My '15
- Houses of T. C. Dennehy, Esq., Mrs. M. S. Flood and others; views and plans, Brickb 24:pl 23-30 F '15
- Low cost cottage with shingle roof intended for erection on a lot having forty feet frontage, 11 diagr plans Bldg Age 37:42-5 S '15
- Modern version of the early Pennsylvania country house, C. M. Price, 11 plans Arch Rec 37:76-81 Ju '15
- Portfolio of current architecture, 11 Arch Rec 37:371-8, 465-9; 38:663-71 Ap-May, 15 '15
- Progressive architectural construction, F. Squires, Arch & Bldg 47:supl-2 Jl '15
- Residence design, 11 plans Arch & Bldg 47:78-81 F '15
- Residence of an Illinois architect, 11 diagr plans Bldg Age 37:19-25 D '15
- Residence of Charles S. Walton, Esq., R. D. Murray, Arch Rec 38:501-23 N '15
- Residence of P. E. Drury, Esq., Cleveland, Ohio, L. T. Peary, 11 plans Arch Rec 38:501-14 D '15
- Residence of S. Harkness, Esq., Goshen Point, near New London, Conn., 11 plans Arch & Bldg 47:378a O '15
- Residences designed by Rowe & Smith, 11 Arch & Bldg 47:306-11 Ar '15
- Stone dwelling for the suburbs, 11 plan, Bldg Age 37:12-5 Je '15
- Suburban home of tile and stone, 11 plans Bldg Age 37:19-21 My '15
- Suburban house of stucco finish, 11 diagr plans Bldg Age 37:42-5 Ar '15
- Two-family house at East Orange, N. J., 11 plans Bldg Age 37:61-2 Je '15
- Two floor plans for southern homes, plans: Bldg Age 37:40-1 S '15
- Week-end house at Arkley, N. Y., of Adolph Lawbabin, Esq., Arch Rec 38:177-81 Jl '15
- Western home of frame construction, C. A. Park, 11 plans Bldg Age 37:37-31 N '15
- Yama Shiro, the Japanese villa of Adolph L. and Eugene Bernheimer, F. M. Small, 11 plan Arch & Bldg 47:212-20 Je '15

England

- Old timbered houses; examples of old post and plaster work of the 15th and the 16th centuries, 11 Bldg Age 37:65-6 Ar '15

Italy

- Villa Madonna; test and measured drawings by Howard W. Germain, 11 Arch Rec 36:600-10; 37:26-47 D '14-Ja '15

United States

- Architectural reclamation of small arena in cities, 11, D. Merlein, 11 Arch Rec 37:1-26 Ja '15
- Colonial architecture in Connecticut, W. S. Remond, 11 Arch Rec 37:560-9, 445-52, 547-59; 38:672-80 Ap-Je, 15 '15
- Country house architecture in the East, E. D. Litchfield, 11 plans Arch Rec 38:452-88 O '15
- Country house architecture in the middle West, D. B. Wight, 11 plans Arch Rec 38:385-421 O '15
- Country house architecture on the Pacific coast, L. C. Mulholland, 11 plans Arch Rec 38:423-51 O '15
- Early architecture of the valley of the Happa-humuck, F. C. Ishiwin, 11 diagr plans Am Inst Arch J 3:113-18, 234-40, 328-30 Mr, Jr, Ag '15
- House of Arthur A. Fowler, Esq., H. V. Meeks, 11 plans Arch Rec 38:193-205 Ag '15
- Recent interiors by Thornton Chard; views, Arch Rec 37:177-80 F '15
- Residence construction in Indiana, J. P. Hubbard, 11 plans Bldg Age 37:47-52 O '15
- Residence of Charles S. Walton, Esq., R. D. Murray, 11 plans Arch Rec 38:501-23 N '15
- Seventeenth century New England house at Topsfield, Mass., D. Miller, 11 plans Arch Rec 38:348-61 S '15
- Stuart Duncan residence at Newport, 11, Grady, 11 plan Arch Rec 38:289-309 M '15
- Three types of Georgian architecture; the evolution of the style in Philadelphia, 11, D. Merlein, 11 diagr Arch Rec 37:159-76 F '15

Architecture, Ecclesiastical. See Church architecture**Architecture, Greek**

- Greek refinements; studies in temperamental architecture, by W. H. Goodyear, Review, Arch Rec 37:281-6 Mr '15

Architecture, Japanese

- Yama Shiro, the Japanese villa of Adolph L. and Eugene Bernheimer, F. M. Small, 11 plan Arch & Bldg 47:212-20 Je '15

Architecture, Medieval

- Books on medieval architecture, R. F. Duth, Arch Rec 37:1-1 S, 563-6 My Je '15

Architecture, Roman

- Roman architecture and its critics, A. D. F. Hamlin, 11 Arch Rec 37:15-36, 193-6 My Je '15

Architecture, Rural. See Country houses; Farm buildings**Architecture, Spanish**

- Panama-California exposition, San Diego, California; Bertram C. Goodhue and the renaissance of Spanish colonial architecture, C. M. Price, 11 plan Arch Rec 37:229-61 Mr '15

- Plunge of Spanish colonial architecture, M. Wilson, 11 Arch Rec 37:2-5 Je '15

See also Architecture Spain**Arctic exploration**

- Antimony in the Arctic, R. W. Porter, Sci Am 8:3939-40 Ja '15
- Capt. Brimbleton Arctic expedition, Sci Am 112:201 F 27 '15
- Crocker land expedition, Sci Am 111:489 D 12 '14
- Food for polar explorers, P. Shackleton, Sci Am 11:2036-7 Ja '15
- Relies from the second Crocker expedition, Sci Am 11:2030-30 M '15
- Stations on a new land land H. J. Spuden, 11 map Sci Am 113:285-6 O 2 '15
- Who will recon the last explorer? Sci Am 112:150 F 20 '15

Area measurement

- Reducing decimals of an acre to square feet; table, C. H. Gilbert, Eng N 74:97-107 '15
- Reducing square feet to decimals of acres, Eng N 74:263 Ag 19 '15

Argentina

- Banking and credit in Argentina, Brazil, Chile, and Peru, H. N. Hedges, 11 J Int Fin & Com Com 90:1-7 '14
- Electrical conditions in Buenos Aires and Argentina, Elec R & Eng'n 66:174-6 Ja '15
- Financial developments in South American countries, W. H. Long, 11 J Int Fin & Com Com 103:7-12 '15
- Making friends with the South American, R. S. Nason, 11 Metal Work 83:377-9 Mr 12 '15

Commerce

- Argentina's need is America's opportunity, Metal Work 84:13-14 O 1 '15
- Cotton textile in Argentina, Textile World 48:318-21, 414-17 Je Jl '15
- Outlook for American goods in Argentina, A. E. de Hoch, Am Ind 15:30-1 F '15
- Pan American trade Argentina, A. M. Dodge, Am Ind 16:26-3 O '15

Sanitary affairs

- Water supply and drainage in Argentina, A. Dale, 11 Metal Work 84:163-6 Jl 23 '15

Argon

- Notes on the noble gases, W. S. Andrews, Gen Elec 11:18:226 Mr '15

Arithmetic**See also Measurement; Multiplication****Study and teaching**

- Teaching arithmetic with the selling price as a base for finding profits, Gen Elec 72:179 Ag 7 '15

Arithmetic, Commercial**See also Calculating machines; Discount; Interest**

- Arithmetical machines. See Calculating machines

Arizona**Industries and resources**

- Arizona in 1914; mining industries. map Eng & Min J 99:106-7 Ja 9 '15
Valuation of Arizona's producing mines. Eng & Min J 100:469 S 18 '15

Arizona copper company

- Cost of cars, electric locomotives, etc., for Arizona copper co.'s new smelter. diags Eng & Min J 99:495 Mr 13 '15
Design, construction and unit costs of the power house for the new smelter of the Arizona copper co., ltd., Clifton, Ariz. diags plans Eng & Contr 42:262-5 S 18 '14
Unit construction costs from the new smelter of the Arizona copper co., ltd. E. H. Jones. diags Am Inst Min E Bul 91:1497-1649 J1 '14; Abstract. Eng & Contr 42:560-3 D 16 '14

Arkansas**Industries and resources**

- Occurrence and origin of the bauxite deposits of Arkansas. W. J. Mead. pls Econ Geol 10:28-54 Ja '15

Armaments

- Invisible man behind the gun. Sci Am 112:46 Ja 9 '15

See also Armies; Navies

Armatures

- Direct-current armature winding principles. J. Gintz, jr. Power 41:335-8 Mr 9 '15
Experimental data concerning the safe operating temperature for mica armature-coil insulation. F. D. Newbury. diags Am Inst E R Pro 34:2555-72 O '15; Abstract. Elec W 66:1206-6 N 27 '15
Incremental armature copper losses at no-load and armature teeth fully-current losses. A. Press. diags Inst E R J 53:820-3 Ja 16 '15
Methods of removing the armature from box frame railway motors. J. L. Booth. II Gen Elec R 18:908-15 S '15
One method of locating faults in an armature. E. M. Blough. Elec R & W Elec'n 66:343 F 20 '15
Protecting armature coils from cutting on band wire. W. A. Ernst. Elec Ry J 46:1089-90 N 27 '15
Rewinding direct-current motors and generators. A. A. Fredericks. diags Power 42:76-8, 116-18, 148-50 J1 20-Ag 3 '15
Slot insulation design, with comparison between the unit dielectric stresses in the slot insulation of a low-voltage alternator and those in a high-voltage machine. H. M. Holbert. Gen Elec R 18:366-71 My '15
Small vs. large 550-volt armatures. H. Dawson. Power 42:422 S 21 '15
Soldering commutators and rotors. G. Fox. diags Power 42:328-9 S 7 '15
Solenoid and electromagnet windings. G. L. Hodges. Am Inst E R Pro 34:2595-2614 N '15
Space distribution of flux density. A. Hull. Elec W 65:1679-82 Jo 26 '15
Two-phase and three-phase lap windings in unequal groups. H. M. Tingley. Elec R & W Elec'n 66:166-8 Ja 23 '15
Universal armature machine. II Elec Ry J 46:412-13 S 4 '15

See also Commutators; Dynamos; Electromagnets

Armies

- Clothing a winter army. Sci Am 112:215+ Mr 6 '15
See also Military art and science; Military hygiene; Navies; War

Commissariat

- Flour motin and army rations. W. P. Pyecraft. II Sci Am S 80:333 N 20 '15

Armor plate

- Cost of a government armor plate plant. Iron Age 95:874-5 Mr 25 '15
New Krupp armor plates. Sci Am 113:338 O 16 '15

Armories

- Drill room, University of Illinois, requires 23,000 square feet of direct radiation. G. B. Hice. II diags Heat & Vent 12:13-23 S '15

- End framing for armory at University of Illinois and some general features of this structure. II diags Eng & Contr 48:141-2 F 17 '15

Armour car lines

- Private car lines not common carriers. Ry Age 58:1051-2 My 21 '15

Arms and armor

See also Guns; Helmets; Pistols; Rifles

Army rations. *See* Armies—Commissariat**Arrowrock dam**

- Completion of Arrowrock dam. M. F. Cunningham. II Sci Am 113:343 O 16 '15
Construction of the Arrowrock dam. C. H. Paul. II Boston Soc C E J 2:337-49 N '15
Log-handling equipment at Arrowrock dam. C. H. Paul. diags map Eng N 74:200-1 J1 29 '15
Messhouse management at the Arrowrock dam. R. R. Clawson. II Eng N 73:1201-3 Jo 24 '15
Progress on Arrowrock dam. C. H. Paul. II Eng N 73:370-1 F 25 '15

Arsenic

- Distribution of arsenic in liver tissue in cases of poisoning. L. A. Ryan. Am Chem Soc J 37:1959-60 Ag '15

- Electrolytic separation of zinc, copper and iron from arsenic. A. K. Balls and C. C. McDonnell. J Ind & Eng Chem 7:26-9 Ja '15

See also Dipping fluids, Arsenical

Arsenical dipping fluids. *See* Dipping fluids, Arsenical**Arsenious oxide**

- Arsenious oxide as an alkalinetric standard. A. W. C. Menzies and F. N. McCarthy. Am Chem Soc J 37:2021-4 S '15

- Vapor pressure of arsenic trioxide. H. V. Welch and L. I. Duschak. II U S Bur Mines Tech Pa 81:1-20 '15

Arsenious sulphide

- Congulation of arsenious sulfide sol by electrolysis. J. Mukhopadhyaya. Am Chem Soc J 37:2024-31 S '15

Art

- Ministry of art, by R. A. Cram. Review by R. E. Bach. Arch Rec 37:187-9 F '15

See also Architecture; Decoration and ornament; Design, Decorative; House decoration; Mural painting and decoration; Photography

Art galleries

- Dedication of the Minneapolis institute of arts. R. H. Hewitt. Am Inst Arch J 3:85-6 F '15
Montreal art gallery. T. W. Ludlow. II plans Arch Rec 37:132-48 F '15
Purlish museum, Southampton, Long Island. C. C. May. II plans Arch Rec 38:524-39 N '15

Lighting

- Glare in museum galleries; the psychological factor in the lighting problem. B. I. Gilman. diags Arch Rec 38:262-80, 362-78 Ag-S '15
Nitrogen-filled lamps in Boston art museum. II Elec W 66:481-2 Ag 28 '15

Artesian wells

- Experience with artesian well water at Elgin, Illinois. L. H. Parkin. Am Water Works Assn J 2:407-9 Jo '15
Kynuna wells—a test case of rock pressure. J. W. Gregory. map Econ Geol 9:768-75 D '14

- Method of testing verticality of a deep well at Audubon, Iowa. P. F. Hopkins. Eng & Contr 42:559 D 16 '14

- Studies of artesian waters in Chicago and surrounding territory. C. B. Anderson and F. W. DeWolf. map Am Water Works Assn J 2:318-23 Jo '15

- Thal influence on artesian well at Seattle. H. M. Chittenden. Eng N 74:492 S 9 '15

Artificial daylight. *See* Daylight, Artificial**Artificial ice.** *See* Ice—Manufacture**Artillery**

- Field artillery and ammunition. G. B. Jewell. II diags Eng M 49:698-711 Ag '15
Giant artillery of fifty years ago. Sci Am S 80:80 J1 31 '15
Mathematics and artillery science. G. Greenhill. Sci Am S 79:143 F 27 '15

Artillery—Continued

- Notes on coast artillery hits. E. C. M. Stahl. *Il diags* Sibley J 29:67-78 D '14
Proving grounds for French artillery: a laboratory battlefield. J. Boyer. *Il Sci Am* 113: 116-7 Ag 7 '15
Spendthrift artillery. Boissonnet. *Sci Am* 113: 408 N 6 '15

See also Gunnery; Guns (ordnance); Naval guns

Artists

- Random reflections on artists and scientists. *Sci Am* 112:229 Mr 6 '15

Asbestos

- Asbestos in southern Quebec. J. A. Dresser. *Il Am Inst Min* 19 Bul 93:2267-74 S '14; Discussion. 100:861-3 Ap '15
Corrugated asbestos cement sheets for roofing and siding. *diags Eng & Contr* 44:214 S 15 '15; *Iron Age* 90:407 Ag 19 '15; *Ry Age* 59:537 S 17 '15; *Ind Eng* 15:103-4 S '15; *Am Gas Light J* 103:320-1 O 4 '15
Facts about asbestos. *Power* 42:493 O 5 '15
Growth of the asbestos industry. *Textile World* 50:128-9 O '15
United States the greatest user of asbestos. *Dom Ind* 72:270 Ag 28 '15

Ascaridolic acid

- Resolution of ascaridolic acid. E. K. Nelson. *Am Chem Soc J* 36:3521-2 D '14

Ash

- Hickories, elms and ash trees. W. H. Miller. *Il Am For* 21:719-20 Ja '15
Use of native woods for interior finish. C. M. Price. *Il Brickb* 24:242 O '15

Ash handling

- Ash and refuse dumping board. West 77th st., North river, New York city. C. W. Simmelford. *diags Eng N* 73:166-7 Ja 28 '15
Coal and ash handling at the gorge plant of the Northern Ohio traction & light co. A. D. Williams. *Il diags Power* 42:398-400 S 21 '15
Cost of handling ashes with steam vacuum system. R. H. Miller. *Power* 41:820 Jo 15 '15
Cost of operating vacuum ash-handling systems. C. O. Sandstrom; R. H. Miller. *Power* 41:412 Mr 23 '15
Details of heating and ventilating work; standard designs for ash conveyor belt and chutes for ash cans. F. G. McAnn. *diags Metal Work* 84:458 O 8 '15
Dredge pump handles ashes. O. D. Havard. *diags Power* 41:580 Ap 27 '15
Dust-free suction of ashes and slags; abstract. F. Hartmann. *Am Soc M E J* 37:184-5 Mr '15
Eliminating smoke, soot and dirt in steam generation. *Il Textile World* 43:566-7 Ag '15
Mechanical handling of coal and ashes in the power plant. C. G. Brinley. *Il diags Eng M* 49:872-87; 50:95-77 S-O '15

Ashe. See Ash handling; Coal ashes; Wood ashes

Asphalt

- Asphaltic materials for road construction. A. A. Borkowitz. *Eng & Contr* 42:161-3 Ag 12 '14; Same. *Munic Eng* 47:464-7 D '14
Briquetting plant of the Pacific coast road co., at Briquetville near Benton, Washington; use of asphalt for binder. C. M. Lewis. *Il Colliery* 35:227-31 D '14
Cementing value of bituminous binders. L. Kirschbraun. *Il diags J Ind & Eng Chem* 6:976-85 D '14; Same. *Eng & Contr* 42:39-43 Ja 13 '15
Contributions of the chemist to the asphalt industry. J. L. Rake. *J Ind & Eng Chem* 7:276 Ag '15
Differentiation of natural and oil asphalts. E. C. Fuller. *J Ind & Eng Chem* 6:286-9 Ap '14; Same. *Eng & Contr* 42:347-9 O 7 '14
Interesting application of colloidal chemistry. D. T. Pierce. *Met & Chem Eng* 13:408-9 Ji '15
Kentucky rock asphalt road. C. D. Chain, Jr. *Munic J* 39:365-6 S 2 '15
Mining Trinidad asphalt. *Il Eng & Min J* 99: 463 Mr 13 '15
Purchase of asphalt and asphaltic cement on the bituminous basis. D. T. Pierce. *Eng & Contr* 42:160 F 17 '15

- Purchase of asphalt and asphaltic cement on the bituminous basis. W. H. Broadhurst. *Eng & Contr* 42:85-6 Ja 27 '15
Rock asphalt in the Philippines. *Munic J* 39: 432-3 S 16 '15

See also Bituminous materials; Pavements; Asphalt

Testing

- Kansas City, Mo., maintains open asphalt specifications. C. E. Mandigo. *Il Eng N* 71: 642-4 S 30 '15
Practical testing of asphalt and road oil. T. A. Fitch. *Eng & Contr* 44:367-9 N 10 '15
Testing the consistency of asphalt. *Il Sci Am* 113:236 J S 11 '15

Asphalt plants

- Asphalt distributor. *Il Good Roads* n 2 10-163 Ag 7 '15
Electricity in stone quarries and asphalt plants. *Il Elec R & W Elec'n* 67:315-18 Ag 21 '15
Portable asphalt mixing plant. *Il Good Roads* n 2 10:58-9 Ji 3 '15

Asphalt plants, Municipal

- Bronx borough asphalt plant. *Il Munic J* 39: 215-16 Ag 12 '15
Canden's municipal asphalt plant. *Il Munic J* 38:197-9 F 1 '15
City plant uses old asphalt for New York. *Il Eng Rec* 71:631-2 My 23 '15
Cost of asphalt repair in Pittsburg. J. B. Towndley. *Munic Eng* 43:360 My '15
Harrisburg's municipal asphalt plant. *Il Munic J* 39:351-5 S 2 '15
Municipal plant reduces asphalt maintenance cost in New York. H. W. Durham. *Eng Rec* 71:238-9 F 20 '15
New municipal asphalt plant at Pittsburgh. N. S. Sprague. *Il Munic Eng* 47:464-7 D '14
New municipal asphalt plant for borough of Manhattan. *Il W Durham* *Il diags Plant* *Eng N* 3 1071-2 Jo 3 '15
Operating Manhattan asphalt plant. W. Goldsmith. *Il plan Munic J* 39:431-3 N 15 '15
Pittsburgh's municipal asphalt plant. *Il Munic J* 39:111-3 Ji 9 '15
San Francisco municipal asphalt plant. A. J. Cleary. *diags Eng N* 72:315-16 F 18 '15

Asphaltic concrete. See Pavements; Bituminous concrete

Asphyxiating gases, See Gases, Asphyxiating**Assaying**

- Assay of sample containing lead and antimony. *diags Eng & Min J* 100:271-2 S 25 '15
Assay of precious metal bullion. P. P. Dewey. *Eng & Min J* 99:355-8 F 20 '15
Assaying gold-bearing cyanide solutions. L. M. Levy and H. Jones. *Eng & Min J* 100:150-1 Ji 24 '15
Determination of platinum, palladium and gold. A. M. Speed. *Eng & Min J* 99:700-1 Ap 17 '15
Electrolytic assay of lead. E. A. Lewis. *Metal Ind* n 7 12:461 N '15
Efficiency of roasting for assaying. E. I. Hall. *Eng & Min J* 100:619-21 Ji 14 '15
New assay balance. *Il Met & Chem Eng* 13: 612-13 Ag '15
Phosphate method for assaying. F. J. Hawley. *Eng & Min J* 99:434-7 Mr 20 '15
Quantitative blowpipe as an aid to the spectroscopist. M. Fletcher. *Il diags Met & Chem Eng* 12:283-5, 771-2 N 11 '14
Rule governing calculation losses. W. J. Shurwood. *Am Inst Min E Bul* 101:10-15 Ag '15; *Excerpta Met & Chem Eng* 1:422-3 S '15; Discussion. *Am Inst Min E Bul* 100:2164-5 Ji '15

See also Gold assaying; Metallurgy

Assembling methods

- Assembling motor cars in Packard plant. *Il Iron Age* 90:875-6 O 14 '15
Having assembly carts. A. A. Board. *Iron Age* 90:234-5 Ja 25 '15

Assessment

- Method of assessing cost of water main extension by the municipally owned water works of Duluth, Minn. D. A. Reed. *Eng & Contr* 42:147-8 My 12 '15

- Assessment—Continued**
Table for making assessments for paying. D. B. Davis. Eng & Contr 43:447 My 19 '15
- Associated advertising clubs of the world**
11th annual convention. Chicago, June 20-25. J. T. Elliott. Inland Ptr 55:546-7 J1 '15
- Associated engineering societies of St. Louis**
Regulations. Assn Eng Soc J 54:228-33 My '15
Review. A. P. Greensfelder. Assn Eng Soc J 54:320-7 My '15
- Associated garages of America**
Garage men form national body. Horseless Age 35:198 F 10 '15
- Associated manufacturers of electrical supplies**
Organization. Elec R & W Elec'n 66:480 Mr 13 '15
Supply manufacturers organize. Elec W 65:693-4 Mr 13 '15
- Associated press**
Mobilizing news. C. M. Crane. Il Sci Am 112:134-5 F 6 '15
- Association and associations**
Commercial organizations in France. A. J. Wolfe. U S Bur For & Dom Com 98:1-75 '15
Local association as an educator. Dom Eng 71:128-9 My 1 '15
See also Chambers of commerce; Engineering societies
- Association buildings**
Young women's Hebrew association, New York. Il Arch & Bldg 47:21-5 Ja '15
- Association of Edison Illuminating companies**
36th annual convention. Spring Lake, N. J., Sept. 13-16. Elec W 66:622-3 S 18 '15
- Association of iron and steel electrical engineers**
9th annual convention. Detroit, Mich., Sept. 8-11. Elec R & W Elec'n 67:521-4 S 18 '15
9th annual convention. Detroit, Mich., Sept. 8-11. Elec W 66:624 S 18 '15
9th annual convention. Detroit, Mich., Sept. 8-11. Iron Tr R 57:539-41 S 16 '15
- Association of railway electrical engineers**
8th annual convention. Chicago, Oct. 19-22. Rty Age 59:802-4 O 29 '15
8th annual convention. Chicago, Oct. 19-22. Rty R 57:529-30 O 23 '15
- Association of railway telegraph superintendents**
34th annual convention. Rochester, N. Y., June 22-24. Rty Age 59:19-20 J1 2 '15
- Association of transportation and car accounting officers**
Meeting at Richmond, Va., Dec. 8 and 9, 1914. Rty Age 57:1192 D 25 '14
Summer meeting. Niagara Falls, June 22-23. Rty Age 59:25-6 J1 2 '15
- Astoria tunnel**
Astoria-bronx gas tunnel. J. E. Springer. Il Munie J 39:649-50 O 28 '15
Astoria tunnel under the East river for gas distribution in New York city. J. V. Davison. Il map Am Gas Light J 103:225-30, 244-74 O 11-18 '15
Flooding and recovery of the Astoria tunnel. H. Carpenter. Il diggs Eng N 74:673-8, 736-41 O 7-14 '15
- Astrolabe**
Prismatic astrolabe; a new instrument for determining latitude and time by equal altitudes. D. Ihnes. Il Eng N 72:764-5 O 8 '14; Same. Sci Am S 78:375 D 12 '14
- Astronomical instruments**
Watching the earth revolve. A. H. Compton. Il Sci Am S 79:196-7 Mr 27 '15
See also Astrolabe; Telescope
- Astronomical observatories**
Paris observatory and its work. G. A. Hill. Il Sci Am 112:261-4 Mr 13 '15
- Astronomical research**
Where the mathematician could aid the astronomer. F. Schlesinger. Sci Am S 80:31-2 J1 10 '15
- Astronomy**
Measurement of the distances of the stars. E. W. Bygon. Sci Am S 80:162-3, 182 S 11-18 '15
Recent discoveries in astronomy. Sci Am S 80:210 O 2 '15
- Sidereal universe.** J. S. Plaskett. Sci Am S 80:274-5, 299 O 30-N 6 '15
See also Astronomical instruments; Astronomical observatories; Mechanics, Celestial; Meteorites; Stars
- Study and teaching**
Celestial globe and tellurian. Il Sci Am 113:61 J1 17 '15
- Atchison, Topeka & Santa Fe railroad**
Mr. Hopley and the Santa Fe family. G. Lathrop. Rty R 57:584-5 N 6 '15
Nineteen years' development work on the Santa Fe. map Rty Age 58:1403-6, 1465-8 Je 18-25 '15
Old and the new Santa Fe. C. S. Gleed. Rty R 57:580-2 N 6 '15
Reorganization of the Santa Fe. V. Morawetz. Rty Age 59:849-50 N 5 '15
Twentieth annual report. map Rty Age 59:680-1, 716-18 O 15 '15
- Atlanta, Georgia**
Sewerage
Operating records of Atlanta sewage treatment plant show adequate degree of purification. C. C. Hannon. Il Eng Rec 72:4-7 J1 3 '15
- Atlantic cable.** *See* Cables, Submarine
- Atlantic City, New Jersey**
Hotels
Cold weather construction methods used in erecting Hotel Traymore. D. L. Knedler. Il diggs Concrete Cem 7:172-4 N '15
Largest fireproof resort hotel in the world completed at Atlantic City. Il diggs Eng Rec 72:11-13 J1 3 '15
New Traymore hotel at Atlantic City. Il diggs Eng N 74:18-23 J1 1 '15
Reinforced-concrete frame of hotel Traymore erected at rate of a floor a week. Il plans Eng Rec 72:50-1 J1 10 '15
- Atmosphere**
Formation of ozone in the upper atmosphere. J. N. Pring. Sci Am S 79:286-7, 303 My 1-8 '15
Measuring atmospheric comfort. Il Sci Am 112:431 My 8 '15
See also Air
- Atmospheric pressure**
Barometer and health. Sci Am 112:380 Ap 24 '15
- Atmospheric temperature**
Highest and lowest temperatures in the atmosphere. Sci Am 112:49 Jan 9 '15
Man's true thermal environment. G. W. Graham. Sci Am S 80:219 O 2 '15
- Atomic theory**
Some aspects of the atomic theory. F. Soddy. Sci Am S 80:178-9 S 18 '15
See also Atoms
- Atomic weights**
Annual report of the international committee on atomic weights, 1915. E. W. Clarke and others. Am Chem Soc J 37:1585-9 Ag '14
Annual report of the international committee on atomic weights, 1915. Am Chem Soc J 37:2449-52 N '15
Atomic weight of cadmium. G. A. Hulett and E. L. Quinn. Am Chem Soc J 37:1997-2000 S '15
Atomic weight of molybdenum. J. H. Miller. diggs Am Chem Soc J 37:2046-47 S '15
Atomic weight of tantalum. G. W. Sears and G. W. Hulke. diggs Am Chem Soc J 37:833-44 Ap '15
Atomic weights of lead. Sci Am 111:469 D 5 '14
Elements with several atomic weights. Sci Am S 80:39 J1 17 '15
Molecular weight of sodium carbonate and the atomic weight of carbon referred to silver and bromine. T. W. Richards and C. R. Hoover. Am Chem Soc J 37:106-107 Ja '15
Molecular weight of sodium sulfate and the atomic weight of sulfur. T. W. Richards and C. R. Hoover. Am Chem Soc J 37:108-13 Ja '15
Notes on sodium columbite; the atomic weight of columbium. E. F. Smith and W. K. Van Hugen. diggs Am Chem Soc J 37:1783-97 Ag '15

Atomic weights--Continued

- Periodic law. S. Dushman. *Gen Elec R* 18: 614-21 **31** '15
 Revision of the atomic weight of cadmium: the electrolytic determination of cadmium in cadmium chloride. G. P. Baxter and M. L. Hartmann. *Am Chem Soc J* 37:113-31 **Jan** '15
 Revision of the atomic weight of lead: the analysis of lead bromide. G. P. Baxter and T. Thorvaldson. *Am Chem Soc J* 37:1020-7 **My** '15
 Revision of the atomic weight of lead: the analysis of lead bromide and chloride. G. P. Baxter and F. L. Grover. *Am Chem Soc J* 37:1027-61 **My** '15
 Revision of the atomic weight of praseodymium: the analysis of praseodymium chloride. G. P. Baxter and O. J. Stewart. *Am Chem Soc J* 37:516-36 **Mr** '15
 Same chemical element may have different atomic weights. *Sci Am* 112:313 **Apr** 3 '15
 22d annual report of committee on atomic weights; determinations published during 1914. G. P. Baxter. *Am Chem Soc J* 37: 407-17 **Mr** '15
 Weights of elements. J. Waddell. *Sci Am S* 80:290-1 **N** 6 '15

Atomizers

- Index drilling and tapping attachment for Brown & Sharpe automatic screw machine. W. F. Gradolph. *Ind Engng Mach* 21:289-90 **D** '14

Atoms

- Atoms and ions. J. J. Thomson. *Sci Am S* 79:274, 280-1, 310-11, 326-7, 340-7, 362-3 **My** 1-Je 5 '15
 Atoms, molecules and electrons. N. W. Rakestraw. *Sci Am S* 80:254-6 **O** 16 '15
 Changes of mass and weight involved in the formation of complex atoms. W. D. Harkins and E. D. Wilson. *Am Chem Soc J* 37: 1367-83 **Je** '15
 Chemical significance of crystalline form. W. Barlow and W. J. Pope. *Am Chem Soc J* 36:1675-86 **Ag** '14
 Modern views on the constitution of the atom. A. S. Eve. *Il J Fr Inst* 179:269-82 **Mr** '15
 Present aspect of the hypothesis of compressible atoms. T. W. Richards. *Bull Am Chem Soc J* 36:2417-39 **D** '14
 Recent evidence for the existence of the nucleus atom. A. D. Cole. *Sci Am S* 79:194-6 **Mr** 27 '15
 Recent work on the structure of the atom. W. D. Harkins and E. D. Wilson. *Bull Am Chem Soc J* 37:1396 1391 **Je** '15
 Remarks concerning the chemical significance of crystalline form. T. W. Richards. *Am Chem Soc J* 36:1686-95 **Ag** '14
 Structure of complex atoms; the hydrogen-helium system. W. D. Harkins and E. D. Wilson. *Am Chem Soc J* 37:1383 **Je** '15
 What is matter made of? resemblance of the atom structure to an infinitely small solar system. A. H. Compton. *Engng Sci Am* 112: 451-2 **My** 15 '15

See also Atomic weights; Electrons

- Atterberg** plasticity method. C. S. Kinnison. *U S Bur Stand Tech Pa* 46:1-18 '15

Audion

- Audion telephone repeater. F. M. Williamson. *Elec W* 65:900 **Apr** 10 '15
 Developments of the audion lamp made from light. *Elec R & W Elec'n* 67:298 **N** 13 '15
 Device for receiving wireless time signals. *Ind Engng Elec W* 65:818-19 **Mr** 27 '15
 Double-audion type of receiver, description of the equipment used for the reception of continuous radiotelegraphic waves at station in North Dakota. A. H. Taylor. *Elec W* 65:862-5 **Mr** 13 '15
 First public use of the de Forest lamp as an oscillating audion. L. de Forest. *Ind Engng R & W Elec'n* 67:308 **N** 13 '15
 Operating features of the audion: explanation of its action as an amplifier, as a detector of high-frequency oscillations and as a valve. H. H. Armstrong. *Engng Elec W* 64:1149-52 **D** 12 '14
 Ultraudion detector for undamped waves. L. de Forest. *Ind Engng R & W Elec'n* 66:257-8 **F** 20 '15; Same. *Elec W* 65:165-6 **F** 20 '15

Auditing

- Competitive bidding. *J Account* 20:81-90, 133-6 **Ag** '15
 Qualifications in certificates. C. O. May. *J Account* 20:248-59 **O** '15
 Value of an audited statement. A. G. Moss. *J Account* 18:455-9 **D** '14
 See also Accounting

Auditoriums

- Acoustics of auditoriums; investigation of the acoustical properties of the armory at the University of Illinois. E. R. Watson. *Bull Am Chem Soc* 32:113-14; Same. *Sci Am S* 78:338 **9**, 350 **2** **D** 5 12 '14
 Acoustics of auditoriums; investigation of the acoustical properties of the armory at the University of Illinois. E. R. Watson. *Il Brickb* 21:237-8 **O** '14
 Project for large munition convention hall in Chicago. *Il Engng Rec* 71:100 **1** **Jan** 16 '15
 San Francisco's new expedition club auditorium. *Il Elec W* 65:313 **Jan** 30 '15
 Ventilation and other features of expedition auditorium at San Francisco. *Il Engng Rec* 71:237-8 **F** 20 '15
 See also Interphone

Augers

- Facts about augers and auger bits. E. H. Purville. *Ind Ag* 37:67 **8** **Ag** '15

Austin, Texas**Public works**

- Hollow reinforced-concrete structure to adorn dam at Austin, which failed fifteen years ago. *Il Engng Rec* 71:672-3, 707 **9**, 750 **1** **May** '15
 Hydroelectric development at Austin. *Il Engng Rec* 71:100 **1** **Jan** 16 '15
 New Austin dam and power plant. E. S. Taylor. *Il Engng & Contr* 63:65 **1**, 67 **1**, 69 **1** **May** 26-Je 2, 16 '15; Same cont. *Il Engng & W Elec'n* 66:929 **15** **May** '15
 Power development at the Austin dam. E. S. Taylor. *Il Engng plan* 136: 1, 11, 12, 13 **Je** 10 '15
 Reconstruction of Austin, Tex., reservoir dam. E. S. Taylor. *Il Engng Plan* 136: 1, 11, 12, 13 **Je** 10 '15
 Question about the Austin, Tex., dam. J. H. Austin. *Il Engng Plan* 136: 1, 11, 12, 13 **Je** 10 '15

Australia

- See also Mines and mineral resources; Australia

Commerce

- American goods for Australia. *Am J P Res*. *Metal Work* 3:154 **Mar** '15

Commercial policy

- Australian anti-dumping law. *Iron Age* 90:587 **O** 14 '15

Industries and resources

- Australian metal contracts. *Iron Age* 90:109 **1**, 114 **1**
 Western Australian goldfields. Low water supplies are projected. *Il Engng Rec* 71:100 **1** **Jan** 16 '15

Austria-Hungary**Industries and resources**

- Chemical industries of Austria-Hungary and the war. Abstract. E. Deutsch and G. Ullrich. *Metal & Chem Ind* 11:239 **Apr** 2 '15
 Bohemian steel works; a facts was read. *Il Iron Age* 90:10 **1** **Jan** 16 '15

Navy

- Austrian submarines. *Il Sci Am* 111:20 **3** **Jan** 15 '15
 Submarine for the Austro-Hungarian navy. E. C. Coleman. *Il Sci Am* 111:6 **3** **Jan** 15 '15

Authorship

- Writing technical articles. H. P. Owens. *Am Chem Light J* 16:2 **1** **Jan** 1 '15
 See also Journalism

- Auto-buses. See Buses; Motor buses

- Autoclave test. See Cement testing

- Automatic machinery. See Machinery, Automatic

Automobile accidents

Investigating and handling automobile accidents. J: S. Mills. Elec Ry J 45:1203-4 Je 26 '15

Prevention of motor-vehicle accidents. S: B. Hare. Elec Ry J 46:812-13 O 16 '15

Automobile brakes. See Brakes, Automobile**Automobile costumes**

Fashion hints for winter wear for women. II Automobile 31:1014-16 D 3 '14

Automobile driving

Left-hand vs. right-hand drive. C. C. Blackmore. Sci Am 112:83 Ja 23 '15

Left hand vs. right hand drive. O. B. Potter. Sci Am 112:309 Ap 3 '15

Automobile engineering

Automobile engineering curricula at the University of Michigan. W. T. Fishleigh. Horseless Age 35:111-14 Ja 20 '15

Automobile engines

Able engine—sheet steel for motor parts. II diag Automobile 32:594-5 Ap 1 '15

Adjustable V-motor connecting rod big ends. II diag Horseless Age 36:49 Jl 14 '15

Aluminum pistons for racing and high-speed work—connecting-rod stresses complex—four valves per cylinder. C: Vivier. Automobile 33:706-7 O 14 '15

American-built motors of recent design compare favorably with European products. (S. S. Ricker. II Automobile 33:100-7 Jl 15 '15

America's engineering triumph at the Sheephead Bay speedway. A. L. Clayden. II Automobile 33:698-8 O 14 '15

America's smallest Knight the new Molino. II Automobile 32:225 F 4 '15

Art in high-speed motor design. W. B. Stout. Automobile 33:808-9 S 30 '15

Balanced intake in rotary motor. II diag Automobile 31:1156-7 D 24 '14

Barthel six-cylinder motor. diag Horseless Age 35:148 Ja 27 '15

Bellam and Brégeras automobile engine. diag Am Soc M 19 J 37:287 My '15

Block castings, with table of motor characteristics in the different price classifications for the past 5 years. Automobile 31:1194-8 D 31 '14

Bourneville rotary valve motor. diag Horseless Age 34:916 D 29 '14

Briscoe eight and four in same chassis. II diag Automobile 33:151-5 Jl 22 '15

Buda eight-cylinder engine. II Horseless Age 35:172 F 3 '15

Capacity of eight-cylinder motors in cubic inches calculated for bores between 2½ and 6 inches, with strokes from 2½ to 6½ inches. Automobile 32:265 F 11 '15

Car vibration and engine unbalanced forces. L. R. French. Horseless Age 35:52-5 Jl 14 '15

Chalmers valve-in-head motor. II diag Automobile 33:144-7 Jl 22 '15

Chart for determining brake mean effective pressure. Horseless Age 36:370 O 15 '15

Cole introduces eight-cylinder model. II Horseless Age 35:95-6 Ja 20 '15

Compression ratio at high altitudes. Horseless Age 35:816 Je 16 '15

Connecting-rod design for V motors. C. S. Ricker. Automobile 33:234-5 F Ag 5 '15

Continental light six motor announced. II Automobile 32:1130 Je 24 '15

Continuous carbon remover. Automobile 32:162 Ja 21 '15

Cylinder number; separate cylinder heads. II diag Horseless Age 34:938-40 D 30 '14

Davis eight uses two camshafts. II Automobile 32:183-4 Ja 28 '15

Discussion on eight cylinder motors at S. A. E. Indiana meeting. Horseless Age 35:282-4 F 24 '15

Dorris six original design. II diag Automobile 32:636-8 Ap 8 '15

Duesenberg double oiling system. II Automobile 32:272 F 11 '15

Duesenberg 1915 motor. II Horseless Age 35:503 Ap 14 '15

Eight-cylinder engine. II: C. Chatain. II diag Automobile 32:87-9 Ja 14 '15

Empire engineer thinks sixes good for all cars up to 2000 lbs. L: Schwitzer. Automobile 33:652 O 7 '15

Enger twelve with individual valve cams. II diag Automobile 33:603-4 S 30 '15

Engine for Dennis brothers' subsidy motor lorry; plan. Engineer 119:sup Je 18 '15

Engine power at high altitudes. Horseless Age 36:24 Jl 7 '15

European high-efficiency motors. S. Gerster. diag Automobile 32:667-9, 710-11+, 752-5 Ap 15-20 '15

Factors in valve-in-head design. W. A. Brush. diag Automobile 33:320-2 Ag 19 '15

Fallacy in twelve argument. D: Fergusson. Automobile 33:792 O 28 '15

Ferro eight-cylinder V-type engine. II diag Horseless Age 35:97-8 Ja 20 '15

Four cylinders and their future. A. L. Clayden. Automobile 33:28-9 Jl 1 '15

Friction horse power of motors. S. R. Thomas. Horseless Age 35:217 F 10 '15; Abstract. Ind Eng 15:560 F '15

Fundamental problems of engine design; with discussion. A. P. Brush. Automobile 32:1106-9, 1145-6 Ja 24 '15; Abstract. Am Soc M 19 J 37:562-3 S '15

Governors for motor vehicles. T. Douglas. diag Automobile 32:942-5 My 27 '15

Harding connecting-rod under tension; two-cycle English design has double truncated pistons. diag Automobile 32:906 My 30 '15

Herrmann eight uses splash oiling. diag Automobile 32:758-9 Ap 29 '15

Herschell-Spallman eight-cylinder motor. Automobile 32:80-1 Ja 14 '15

High speed automobile motor. C: F. Harrott. II Sci Am 112:111-14 Ja 3 '15

High-speed engines. D. M. White. Sci Am S 79:411 Je 26 '15

High speed, high efficiency motors. J: G. Ingram. Horseless Age 35:38-40 Ja 6 '15

History of the twelve-cylinder motor. E. W. Walford. II Automobile 32:500-1 Mr 18 '15

Hoeller eight cleverly designed. II Automobile 32:857-9 My 13 '15

How and why of the V-type motor. J: S. Harwhite. II Sci Am 113:20-1, Jl 3 '15

How many cylinders? A. L. Clayden. diag Automobile 32:888-91 My 20 '15

How many cylinders? J. G. Vincent. Eng M 49:930 S '15

Hupmobile—larger motor in 1916. II diag Automobile 32:982-3 Ja 3 '15

Inertia forces in twelve-cylinder motors. D. Fergusson. Horseless Age 36:367 O 15 '15

Jenks eight-cylinder motor. II Horseless Age 35:173 F 3 '15

Knight racing motor. diag Automobile 32:291 F 11 '15

Light pistons make smooth motor. E. W. Walford. diag Automobile 32:362-3 F 25 '15

Locomobile refines both sixes. II diag Automobile 32:1072-5 J Je 17 '15

Lower weight higher efficiency. A. L. Clayden. Automobile 33:653 S 23 '15

Lozier introduces the 11-A-1, twelve. II Horseless Age 35:873 Je 30 '15

Marmon features continued for 1916. II diag Automobile 32:12-15 Jl 1 '15

Mathematics of motor flywheel explained. Automobile 33:466-7 S 9 '15

Mean effective pressure and piston speed. charta Horseless Age 36:229-31 S 1 '15

Medanich motor has balanced exhaust. diag Automobile 32:208 Jl 29 '15

Metropolitan S. A. E. discusses aeroplanes and governors. diag Automobile 33:560-3 S 23 '15

Monarch adds eight-cylinder model; Herschell-Spallman motor interchangeable with Continental six in same chassis. II diag Automobile 32:492-3 Mr 18 '15

Motor speeds at 10 m. p. h. Automobile 31:1115-16 D 17 '14

Multiplex-cylinder motors. Sci Am 113:205 S 4 '15

National highway twelve. II diag Automobile 33:326-7 Ag 19 '15

New motors from an efficiency viewpoint: a comparison of L head, T head and I head motors with respect to power output, weight and fuel consumption. V. I. Moneroff. Horseless Age 35:182-4 F 3 '15

New York and Detroit engineers discuss eight-cylinder engines. Horseless Age 34:824-7 D 2 '14

Automobile engines—Ignition devices—Cont.

- Magneto and coil ignition. P. M. Heldt. *diag* Horseless Age 35:178-81 F 3 '15
- Magneto spark vs. battery-coil spark. D. H. Cunningham. *Automobile* 31:1020-3 D 3 '14
- Magneto vs. battery coil—from automobile drivers' viewpoint. C. S. Manierre. *Automobile* 33:20-1 Ja 7 '15
- New principle in motor car ignition. *diag* Horseless Age 35:186-7 Ag 15 '15
- Reasons for advancing spark lever. *Automobile* 31:1162 D 24 '14
- Single spark and similar interrupters. P. M. Heldt. *diag* Horseless Age 35:150-2 Ja 27 '15
- Spark advance should be function of flame propagation. R. L. Hoyt. *Automobile* 32:408-9 Mr 4 '15
- Spark plug. P. M. Heldt. *diag* Horseless Age 34:918-20 D 23 '14
- Spark timing methods. P. M. Heldt. *diag* Horseless Age 35:274-7 F 24 '15
- Systems of electric ignition defined. *Automobile* 32:589 Ap 1 '15
- Two-point ignition. P. M. Heldt. *diag* Horseless Age 35:314-6 Mr 10 '15
- Wiring of Bosch duplex system. *diag* Horseless Age 34:909 D 30 '14

See also Automobiles Electric equipment; Magnetos

Lubrication

- Automobile lubrication. C. W. Stratford. *diag* Sci Am 8 79:393-3, 412-14 Jo 19-26 '15; Same. *Horseless Age* 35:879-81; 36:16-19 Jo 30-Jl 7 '15
- Exhaust heat cuts oil film. G. S. Bryan. *Automobile* 32:516-9 Mr 25 '15
- Low-test, easily-vaporized oil: objections. C. E. Puryear. *Automobile* 32:756 Ap 29 '15
- Lubricating system for P. N. motors made in Belgium. *diag* *Automobile* 32:159-60 Ja 21 '15
- Lubrication of old model Pope-Hartford. *diag* *Automobile* 32:1126-7 Jo 24 '15
- Properties of lubricating oils. O. J. May. *Horseless Age* 35:338 Mr 10 '15
- Splash oiling for lights. *diag* *Automobile* 32:468-9 Mr 11 '15
- Splash oiling for stop piston motor. *diag* *Automobile* 32:947 My 27 '15

Manufacture

- Adoption of aluminum pistons. W. M. Levett. *Automobile* 33:421 F 8 '15
- Advantages of sand-cast pistons. W. M. Levett. *Automobile* 33:878-9 N 11 '15
- Aluminum alloy piston. J. E. Diamond. *diag* *Automobile* 33:551-2 S 23 '15
- Aluminum alloy pistons. E. Gruenwald. *Horseless Age* 35:806 F 16 '15
- Aluminum construction advantages. W. B. Stott. *Automobile* 33:463 S 9 '15
- Aluminum or iron crank cases: a comparison of the two materials on the basis of weight, strength and cost. V. I. Monerloff. *Horseless Age* 35:582-3 Ap 28 '15
- Aluminum piston critics answered. J. Leopold and J. E. Diamond. *Automobile* 33:744-5 O 21 '15
- Aluminum piston will never prove success in truly high-duty motor. R. R. Porter. *Automobile* 33:420-1 S 2 '15
- Aluminum pistons. *Horseless Age* 35:326 O 1 '15
- Aluminum pistons pass unchallenged. *Automobile* 32:1116-17 Jo 24 '15
- Aluminum versus steel in motor construction. J. E. Diamond. *Automobile* 33:508 S 8 '15
- American alloys best. J. Leopold. *Automobile* 33:909 N 25 '15
- Analyzing heat flow: use of aluminum for automobile motor construction. E. H. Sherbondy. *Automobile* 32:834-5 N 4 '15
- Early days of aluminum pistons. J. Leopold. *Automobile* 33:650-1 O 7 '15
- How to make automobile engine castings. *diag* *Foundry* 43:291-4 Ag '15
- Molding the new Cadillac eight-cylinder motor. H. C. Ketch. *diag* *Foundry* 43:171-4 My '15

- Overcoming the slap of aluminum pistons. P. M. Heldt. *Horseless Age* 35:327-8 S 1 '15
- Piston practice; present day design with special reference to aluminum alloy. J. E. Diamond. *diag* *Automobile* 33:871-7 N 11 '15; Discussion. 33:931-4 N 18 '15
- Possible troubles with aluminum motor. A. L. Clayden and others. *diag* *Automobile* 33:275-7 Ag 12 '15
- Prefers iron or steel to aluminum. E. H. Sherbondy. *Automobile* 33:651-2 O 7 '15

Overheating

- Causes of overheating briefly outlined. *Automobile* 32:324-5 F 18 '15

Repair

- Block holds any motor in 32 positions. *diag* *Automobile* 32:420 Mr 4 '15
- V-type lights in the repair shop. *Horseless Age* 35:91-2 Ja 20 '15

Terminology

- Definite new unit for motor speeds to avoid vague high and low. *Automobile* 32:1082 Jo 17 '15

Testing

- Four eight makes 300-hr. test. *diag* *Automobile* 33:566-7 S 23 '15
- Friction horse power of motors: tests to determine their variation with change in water jacket temperature. *Horseless Age* 35:217 F 10 '15
- Use of optical indicators for checking defects in functioning of motors. *diag* *Automobile* 33:976-9, 1018-19 N 25-1 D 2 '15

Valves

- Appel is novel valve-driving mechanism. *diag* *Automobile* 33:163-3 Jl 22 '15
- Calculating motion of sleeve valves. *Horseless Age* 35:260-70 S 15 '15
- Negative lap gains in valve timing. *Automobile* 31:1267-8 D 31 '14
- New positive and silent valve operating mechanism. *diag* *Horseless Age* 35:112-13 Jl 28 '15
- Overhead valves in theory and practice. A. L. Clayden. *Automobile* 32:618-19 Ap 8 '15
- Rotary valve makes slow progress. *diag* *Automobile* 32:595 Ap 1 '15
- Rotary valve motors. *Automobile* 33:285 Ag 12 '15
- Rotary valve progress. *diag* *Horseless Age* 35:249 F 17 '15
- Single, balanced, inlet and exhaust valve. J. D. Roots. *diag* *Horseless Age* 35:376 Mr 17 '15
- Timing valves by the flywheel. *Automobile* 33:512-13 S 16 '15
- Valve timing of American motors: tabulation. *Automobile* 31:1268-9 D 31 '14
- Valve types. *diag* *Horseless Age* 31:340 D 30 '11
- Walker motor uses cored rotary sleeve. *diag* *Automobile* 32:728 Ap 22 '15

Automobile factories

- Car, truck and accessory plants expand. *diag* *Automobile* 31:1151-3 D 21 '14
- Petrol plants make \$5,000,000 additions. *diag* *Automobile* 33:324-5 Ag 19 '15
- Directory of automobile makers. *Automobile* 31:1267-3 D 31 '14
- First second city of automobile industry. L. V. Spencer. *diag* *Automobile* 32:569-76 Ap 1 '15
- How Dodge brothers plant was reorganized. H. C. Ketch. *diag* *Iron Tr R* 56:909 16 My 6 '15
- Reimobilization of existing plants as a factor in production costs. H. V. Coet. *diag* *Eng* M 49:363-8 Jo '16
- Solving the spare problem: the Maxwell company's Newstead plant. *diag* *Automobile* 32:816-20 F 18 '15
- Stamping plant for quantity production. R. L. Prentiss. *diag* *Iron Age* 95:489-94 Mr 4 '15
- \$25,000,000 for new buildings and equipment. *diag* *Horseless Age* 35:258-9 S 15 '15
- Unique conveyor in automobile plant. *diag* *Iron Age* 95:566-8 S 9 '15

Automobile factories—Continued

War rushes French plants; automobile factories working 24 hours a day on ammunition, aeroplane and military supplies. W. F. Bradley. *Il Automobile* 32:1013-16; *Jr* 10 '15

See also Automobiles—Manufacture; also Ford motor company

Automobile fans. See Automobiles—Fans

Automobile headlights. See Automobiles—Lighting

Automobile horns

Automobile warning signals. A. L. McMurtry. *diagm Eng M* 48:602-5 *Jl* '15
Dies for drawing flanged shells. E. P. Davis. *diagm Mach* 21:532-4 *Mr* '15
Johns-Manville co. announce new motor, hand and vibrator horns. *Il Horseless Age* 34:973 *D* 30 '14

Automobile industry and trade

Are you selling cars or buying them? *Horseless Age* 34:901-2 *D* 23 '14

Automobile chronology for 1914. *Automobile* 31:1154-5 *D* 24 '14

Certified tests by dealers am sales helps. *Horseless Age* 35:597-8 *My* 5 '15

Educating the dealer's mechanic. A. L. Horn. *Horseless Age* 35:641 *My* 12 '15

Forces at work during 1914—the year review. *Automobile* 31:1143-6 *D* 24 '14

Influence of the war on the automobile industry. *Il W. Perry. Il Sci Am* 113:206-8 *S* 4 '15

Interesting facts about the automobile business. G. B. Griffin. *Elec R & W Elec'n* 67:338 *Ag* 21 '15

Makers cannot maintain prices through contracts with dealers. *Automobile* 31:1085 *D* 10 '14

Metropolitan S. A. E. discusses effects of war. *Horseless Age* 35:185-6 *F* 3 '15

What the motor car does for other industries. G. B. Griffin. *Horseless Age* 35:187 *Ag* 15 '15

See also Automobile factories; Automobile service stations; Electric vehicle industry; Garages; Motor truck industry; also Ford motor company

Accounting

Should dealers' parts accounts be standardized? A. H. Romsen. *Il Horseless Age* 35:69 *Jl* 21 '15

Service

What constitutes service to the owner? C. Gould. *Horseless Age* 35:90-1 *Jl* 21 '15

See also Automobile service stations

Australia

American-made chassis lead in Australian trade. *Automobile* 32:818 *My* 6 '15

New South Wales' 1914 imports \$2,893,830. *Automobile* 32:531 *Mr* 25 '15

Belgium

Belgian car factories intact. W. F. Bradley. *Il map Automobile* 32:99-101 *Ja* 21 '15

Canada

Business gain in western Canada. A. C. Emmett. *Automobile* 31:1112-13 *D* 17 '14

Ceylon

British India. *U S Sp Cons Rep* 72:574-AM '15

France

Americans speed up French factories. W. F. Bradley. *Il Automobile* 32:450-1 *Mr* 11 '15

British duty threatens French exports. *Il Automobile* 32:734-5 *O* 21 '15

French automobile industry in good condition. *Il Automobile* 32:101-2 *Ja* 21 '15

Germany

Germany's export trade; how the 1913 foreign business of \$80,000,000 was distributed. M. Braun. *Automobile* 31:1009-12; *J* 3 '14

Great Britain

Analysis of automobile industry in Great Britain during war. *Automobile* 32:38-9 *Jl* 1 '15
Great Britain again our largest buyer. *Automobile* 32:736-7 *Ag* 23 '15

War stops Olympia, but not car development. J. E. Schipper. *diagm Automobile* 31:1056-7 *D* 10 '14

India

British India. *U S Sp Cons Rep* 72:191-201 '15
U. S. motor cars gain prestige in India. *Horseless Age* 35:490 *Ap* 14 '15

Tasmania

Automobile trade in Tasmania. *Horseless Age* 35:184 *F* 3 '15

United States

Car and truck sales in Southwest gain 61.2% in 3 months. *Automobile* 32:576-8 *Ap* 1 '15

Colorado 1915 motor car registration by make. H. G. Hadden. *Automobile* 32:172-3 *Jl* 22 '15

Detailed export statistics show that U. S. dominates automobile world. *Automobile* 32:624-5 *S* 30 '15

Directory of automobile makers. *Automobile* 31:1262-3 *D* 31 '14

Distribution of motor car exports for the past fiscal year. *Horseless Age* 35:241 *S* 1 '15

Exports for 10 months ending October total \$21,241,860. *Automobile* 31:1129 *D* 17 '14

Exports of 1913-14 exceeded forty millions. tabulation. *Horseless Age* 34:391-3 *Ag* 26 '14

Exports take another jump. *Horseless Age* 35:170 *Ag* 15 '15

Farmers of Southwest could buy 91,000 cars at \$1,000 each. *map Automobile* 32:106-7 *Mr* 1 '15

50,000 cars for Iowa in 1915. C. C. Shambaugh. *Automobile* 32:490-1 *Mr* 18 '15

Gaining the summit of American heliograph. *Horseless Age* 35:261 *S* 15 '15

History of the American automobile industry. *Il: Becraft. Automobile* 31:776-9, 836-7, 880-1, 922-3 *O* 25-*N* 15 '15

Kansas City a great distributing center. *Il: Becraft. Automobile* 32:336-7 *F* 15 '15

Michigan's six month's registrations. M. Braun. *Automobile* 32:504-5 *S* 16 '15

Middle west crop prices increased car sales. *map Automobile* 32:497-9 *O* 16 '14

More than 1,800,000 cars registered in U. S. *Horseless Age* 35:4 *Ja* 6 '15

Motor vehicle registrations and revenues, 1914. *Horseless Age* 35:629 *My* 6 '15

Motor vehicles in the United States. *Month* 3 38:657 *My* 13 '15

New England sales 45,063 cars in 2 years. J. T. Sullivan. *Automobile* 32:255-7 *Mr* 1 '15

New England will spend \$35,000,000 for cars and accessories. J. E. Schipper. *map Automobile* 32:339-41 *Mr* 11 '15

Northwest farmers offer big car market. *Automobile* 32:370-1 *F* 11 '15

Omnibus distributor for the grain belt. *Il: Becraft. Automobile* 32:355-6 *F* 26 '15

Rhode Island's registration analyzed. *Automobile* 32:836 *N* 11 '15

2,070,993 cars in United States. *Il: M. Lay. map Automobile* 32:271-4 *Ag* 12 '15

261,500 cars have electric systems. other statistics. *Automobile* 32:312 *Ag* 19 '15

United States has 1,255,500 cars. *Il: M. Lay. map Automobile* 32:265-7 *Mr* 26 '15

Unprecedented year for Studebaker corporation. *Horseless Age* 35:582-90 *Mr* 2 '15

Automobile lamps. See Automobile Lighting**Automobile laws and regulations**

Car should carry ownership guarantee. *Il: A. Ward. Automobile* 32:670-1 *Ap* 1 '15

Motor car laws of all the states. tabulation. *Horseless Age* 35:218 *Ag* 21 '15

Why local regulations of motor truck traffic are objectionable. *Horseless Age* 35:407-2 *Mr* 24 '15

Yellowstone park automobile regulations now in effect. *Eng Rec* 72:172 *Ag* 7 '15

Automobile mufflers

Automobile muffler losses experimentally determined. *diagm Horseless Age* 35:612 *My* 6 '15

Exhaust silencer operating on principle of neutralizing sounds. *diag Elec W* 64:799-1 *O* 30 '15

Stamping an automobile muffler head. *F* 15 *Practical* *Il Iron Age* 94:971-2 *O* 26 '15

Automobile number plates

New York plans to use new style of automobile number plate. *Il Const Record* 15 *Ag* 23 '15

Automobile parts

- Should dealers' parts accounts be standardized? A. H. Remson, *II Horseless Age* 36: 59 J 21 '15
- S. A. B. suggests standard names, *Automobile* 33:303 Ag 12 '15
- Solving the spares problem: the Maxwell company's Newcastle plant, *II Automobile* 32:316-20 F 18 '15
- Standardizing names of parts, *Automobile* 33: 236-7 Ag 5 '15

*See also Automobiles—Standards***Automobile patents**

- Broad demountable rim patent upheld, *II Horseless Age* 36:224-5 S 1 '15
- Chamber of commerce to defend Kardo patents suit, *Horseless Age* 34:839-30 J 9 '14
- Court holds Baker front axle patent to be void, *Horseless Age* 35:285, 293-4 Mr 3 '15
- Decision rendered in carburetor suit, *Automobile* 32:296 F 11 '15
- Delco wins in self-starter patent suit, *Horseless Age* 35:324-324a Mr 10 '15
- N. A. C. C. cross-licensing patent plans now almost completed, *Automobile* 33:39 J 1 '15
- Ohio court dismisses Kardo axle patent suit, *Horseless Age* 35:525 J Ap 21 '15
- Perlmutter wins decision in long-contested demountable rim patent suit, *Automobile* 33: 394-5 Ag 26 '15
- Two-speed axle decision, *Automobile* 33:79-80 J 1 '15

Automobile racing

- Amerlen's engineering triumph at the Sheepshead Bay speedway, A. L. Clayden, *II Automobile* 33:696-8 O 14 '15
- Astor cup won at 102 miles per hour, *II Horseless Age* 36:351-3 J 15 '15
- Burnham's Peugeot wins Oklahoma City race, *Horseless Age* 35:593 My 5 '15
- Burnham's Peugeot wins Oklahoma race, C. S. Moore, *II Automobile* 32:794-5 My 6 '15
- Dario Resta's Peugeot wins grand prize, *Horseless Age* 35:291-2 Mr 3 '15
- De Palma, in Mercedes, wins at 89.84 miles per hour, *Automobile* 32:969-73 Jo 3 '15
- De Palma's Mercedes wins both Elgin races, *Horseless Age* 34:306-7 Ag 26 '14
- Fluctuations of the averages made in the season's leading contests, *Horseless Age* 36:105 Ag 15 '15
- Getting ready for the international swoopstakes: cars and drivers who will contest, *II Horseless Age* 35:669-72 My 19 '15
- Holiday racing on the speedway, *II Horseless Age* 36:1-3 J 7 '15
- How the Stutz cleaned up at the Elgin races, *Horseless Age* 36:214-15 S 1 '15
- Little trouble at Twin Cities, *Automobile* 33:357 S 9 '15
- Low speed marks Providence century, C. P. Shattuck, *II Horseless Age* 36:312-13 O 1 '15
- Maxwell-Mercer-Duesenberg July 4 winners, *Automobile* 33:53-9 J 8 '15
- Mulford wins 300-mile race on Des Moines speedway, *II Automobile* 33:296-7 Ag 12 '15
- 1914, a good content year, *Automobile* 31: 1147-1 J 24 '14
- 1914 a year of speed records, J. T. Shaw, *Horseless Age* 34:839-840b J 9 '14
- Oldfield's Maxwell non-stop winner at Venice, *II Horseless Age* 35:392-392b Mr 24 '15
- Over 100 miles per hour on Sheepshead speedway, *II Horseless Age* 36:306-7 O 1 '15
- Overhead valves triumph, A. L. Clayden, *II Automobile* 32:973-7 Jo 3 '15
- Pullen wins Corona race at 87.7 m. p. h., *II Automobile* 31:1017-18 J 3 '14
- Resta in Peugeot victorious, *II Automobile* 33: 1-5 J 1 '15
- Resta takes Harkness cup race at 105.39 miles per hour, *II Automobile* 33:846-7 N 4 '15
- Resta, wins again, *II Automobile* 32:446-7 Mr 11 '15
- Resta wins Century at 101.86 miles per hour, *II Automobile* 32:294-5 Ag 12 '15
- Resta wins grand prize, A. G. Waddell, *II Automobile* 32:398-9 Mr 4 '15
- Resta's generalship won Vanderbilt, A. G. Waddell, *II Automobile* 32:512-13 Mr 18 '15
- Resta's record 101.86 miles per hour, *II Horseless Age* 36:166-7 Ag 15 '15

- Review of Corona road race, H. G. Hall, *II Horseless Age* 34:836-8 D 9 '14
- Rickenbacker wins Narragansett 100-mile, J. T. Sullivan, *II Automobile* 33:554-5 S 23 '15
- Setting for the 500-mile race at Indianapolis, A. L. Clayden, *II Automobile* 33:879-82 My 20 '15
- Speed records of the 500-mile race, *Automobile* 32:930-1 My 27 '15
- Stutz cars triumph at Elgin road races, *II Automobile* 33:361-5 Ag 26 '15
- Stutz triumphs at 102.5 miles per hour, J. B. Schipper, *II Automobile* 33:685-86 O 14 '15
- Stutz wins first and second places at Twin Cities, *Automobile* 33:455-6 S 9 '15
- Summary of the C. A. C. trophy race, *Horseless Age* 34:308-9 Ag 26 '14
- Thirty-two cars named for Vanderbilt cup race, *II Horseless Age* 35:224a-224c F 17 '15
- 350-mile Astor cup auto race, *II Sci Am* 113: 357-1 O 23 '15
- Twenty-two cars qualify for 500-mile race, D. Beecroft, *Automobile* 32:923-5 My 27 '15
- Twin City race won by fifth of second, *II Horseless Age* 36:260-1 J 15 '15
- Vanderbilt cup race also won by Resta's Peugeot, *II Horseless Age* 35:325-8 Mr 10 '15
- Winning of the grand prize, A. G. Waddell, *II Automobile* 32:448-9 Mr 11 '15
- World's records made in 500-mile sweepstakes, *Horseless Age* 35:725-9 Jo 3 '15
- World's records shattered at Chicago, *II Horseless Age* 35:865-8 Jo 30 '15

*See also Speedways***Automobile service stations**

- Can manufacturers have a standard service policy? A. Macaulay, *Horseless Age* 35:506-8 My 5 '15
- Metropolitan section of S. A. B. discusses truck makers' obligations to customers, R. B. Bachman, *Automobile* 32:772-3 Ap 29 '15
- Service heads want standard policy, *Automobile* 33:383-5 J 18 '15
- Service managers discuss their problems, J. Smith, *Horseless Age* 36:9-10 J 17 '15
- Sub-division, saving and safety, *Horseless Age* 34:809-70 J 16 '14
- Truck makers to decide on standard service policy, L. V. Spencer, *Automobile* 32:841-4 My 13 '15

*See also Garages***Automobile signals**

- Rear signaling devices for automobiles, *II Sci Am* 113:274-5 S 25 '15

*See also Automobile horns***Automobile touring**

- Motor travel in desert country of southern California, L. L. Paddy, *II Eng & Min J* 100:835-7 N 26 '15
- Sixth volume added to Blue books, maps, *Automobile* 32:595-9 Ap 1 '15
- Three routes offered to Pacific coast tourists, *Automobile* 31:1079 J 10 '14

Automobile trailers

- Industrial plant automobile trailer, *II Iron Age* 96:133 J 15 '15

Automobiles

- Abbott-Detroit eight, *II Automobile* 33:520-1 S 16 '15
- Abbott eight a new model with interesting features, *II Horseless Age* 36:14-15 J 17 '15
- Allen line two models on one chassis, *II Automobile* 33:882-3 N 11 '15
- Argo chassis larger for 1916, *II Automobile* 33:110-12 J 15 '15
- Auburn models for 1916—a six and four, *II Horseless Age* 35:812 Jo 16 '15
- Auburns, 1916—a six and a four, *II Automobile* 33:156-7 J 23 '15
- Auton and the electric car, J. A. Berler, *Elect J* 46:590-2 S 18 '15
- Briscoe eight and four in same chassis, *II Automobile* 33:151-5 J 23 '15
- Briscoe line, 1916, which will be made up of an eight and a four, *II Horseless Age* 36:12-13 J 7 '15
- Bullets for 1916 to be sixes exclusively, *II Horseless Age* 35:770-1 Jo 9 '15

Automobiles—Continued

Buicks, 1916, are both sixes. *II* Automobile 32:1068-71 *Je* 17 '15
 Cadillac eight in second year. *II* *diag*s Automobile 33:188-91 *Jl* 29 '15
 Cadillac eight with detail refinements known as type 53. *II* Horseless Age 36:134-5 *Ag* 1 '15
 Cameron six touring or roadster. *II* Automobile 33:329 *Ag* 19 '15
 Car of 1915. S. P. McMinn. *II* *Sci Am* 112:10-1 *Ja* 2 '15
 Car that stays young. Automobile 33:429-31, 517-19, 612-15 *S* 2, 16, 30 '15
 Chalmers brings out light six. *II* *diag*s Automobile 33:925-7 *N* 18 '15
 Chalmers cars in three models for 1916, including a new six-10. *II* Horseless Age 36:50-1 *Jl* 14 '15
 Comparison of features of the average American car for 5 years. Automobile 31:1193 *D* 31 '14
 Cornellian—a unique light car. *II* Horseless Age 35:814 *Je* 16 '15
 Cornellian—body acts as frame in new model. *II* *diag* Automobile 32:726-7 *Ap* 22 '15
 Crow-Merkhart model for 1916. *II* Horseless Age 36:171 *Ag* 15 '15
 Daniels eight of strong construction. *II* Automobile 33:756 *O* 21 '15
 Davis line is four, two sixes and twelve. *II* Automobile 33:478 *S* 9 '15
 Dorris six—original design. *II* *diag*s Automobile 32:636-8 *Ap* 8 '15
 Dort continues roadster and touring. *II* *diag* Automobile 33:193-5 *Jl* 29 '15
 Driggs-Seabury light cars. *II* *diag*s Horseless Age 36:169-70 *F* 3 '15
 Eleven new chassis seen at show. *II* Automobile 32:12-17+ *Ja* 7 '15
 Empire line—two models. *II* Horseless Age 36:380-1 *O* 15 '15
 Empire—new model 33. *II* Horseless Age 35:570-1 *Ap* 28 '15
 Empire 1916—larger high-speed motor. *II* *diag*s Automobile 32:680-3 *Ap* 15 '15
 Empire six in production. *II* Automobile 33:748-9 *O* 21 '15
 Enger twelve with individual valve cams. *II* *diag*s Automobile 33:803-4 *S* 30 '15
 Engineering development—1915; alphabetical list of cars and description of new designs. *diag*s Automobile 31:1228-60 *D* 31 '14
 Farmack four—overhead valves. *diag*s Automobile 33:892 *N* 11 '15
 Fiat bodies of distinctive design. *II* *diag*s Automobile 33:60-2 *Jl* 8 '15
 Forty cars at Importers' salon. *II* Automobile 32:18-19+ *Ja* 7 '15
 Gilda six—one model only. *II* Horseless Age 36:266-7 *S* 15 '15
 Gilda six replaces four for 1916. *II* Automobile 33:461-5 *S* 9 '15
 Grant popular-priced six. *II* Horseless Age 34:971-2 *D* 30 '14
 Grant six—larger motor in 1916. *II* Automobile 33:605-7 *S* 30 '15
 Great Western six with many unusual features. *II* Horseless Age 36:74-5 *Jl* 21 '15
 Halladay light six. *II* Horseless Age 35:470-1 *Ap* 7 '15
 Haynes light six models. *II* Horseless Age 35:747 *Je* 2 '15
 Herr-Brooks adds a small four chassis. *II* Automobile 32:608-9 *Mr* 18 '15
 Hollar eight. *II* Horseless Age 35:501-2 *Ap* 14 '15
 Hollar eight cleverly designed. *II* Automobile 32:857-9 *My* 13 '15
 Hudson, 1916, has yacht line body and is offered at lower figure. *II* Horseless Age 35:768-9 *Je* 2 '15
 Hudson, 1916—new boat body. *II* *diag* Automobile 32:1028-5+ *Je* 10 '15
 Hupmobile has larger engine—lower price. *II* Horseless Age 35:738-9 *Je* 2 '15
 Hupmobile—larger motor in 1916. *II* *diag*s Automobile 32:882-5+ *Je* 3 '15
 Hupmobile model K has larger engine. *II* Horseless Age 34:323 *Ag* 26 '14
 Imperial for 1916—a low priced four. *II* Horseless Age 35:808-9 *Je* 16 '15
 Imperial four has large motor. *II* *diag* Automobile 32:1076-7 *Je* 17 '15

Jackson eights and a four. *II* *diag*s Automobile 33:794-5 *O* 28 '15
 Jeffery four with high speed, long stroke motor. *II* Horseless Age 36:110 *Il* *Jl* 28 '15
 Jeffery new four. *II* *diag*s Automobile 33:183 *Je* 21 '15
 Kearns cars quick detachable bodies. *II* *diag* Automobile 32:779 *Il* *Ap* 29 '15
 King eight-cylinder for \$1,350. *II* Automobile 31:1000-2 *D* 10 '14
 King eight-cylinder to sell for \$1,350. *II* Horseless Age 31:850 *Il* *D* 9 '14
 Kissel adds four cylinder chassis. *II* *diag*s Automobile 33:169-71 *S* 9 '15
 Kissel adds 16 head block six. *II* Automobile 31:1124-5 *D* 17 '14
 Kissel car 42 six. *II* Horseless Age 31:881 *S* 16 '14
 Kissel-Kar new ideas all year model. *II* Horseless Age 36:168 *Je* 16 '15
 Kline adopts unit power plant. *II* Automobile 31:1032-3 *D* 3 '14
 Kell 1915 shows little change. *II* Horseless Age 31:823-4 *Ag* 25 '14
 Lewis, 1916, VI equipped with vacuum electric rear shift. *II* Horseless Age 35:100 *Je* 21 '15
 Light cars at the show. *II* *Il*. Brown Horseless Age 35:23-4 *Ja* 6 '15
 Lightning and the automobile. C. L. Johnson. *Sci Am* 111:567 *D* 19 '14
 Lippard-Stewart two truckways. *II* Automobile 32:649-1 *Ap* 8 '15
 Locomobile refines both sixes. *II* *diag*s Automobile 32:162-3 *Je* 17 '15
 Locomobile sixes for 1916. *II* *diag*s Horseless Age 35:778-9 *Je* 9 '15
 McPherson cars larger for 1916. *II* Automobile 33:376 *Je* 26 '15
 McPherson line improvement. *II* Horseless Age 36:172-3 *Ag* 15 '15
 McPherson six improvements. *II* Horseless Age 31:319-20 *Ap* 20 '14
 Madison light six roadster and touring car. *II* Horseless Age 35:180 *Je* 9 '15
 Marlon light six. *II* Horseless Age 35:196 *Il* *My* 26 '15
 Marlon light six announced. *II* Horseless Age 35:652 *My* 12 '15
 Marlon six high speed motor in 1916. *II* Automobile 32:569 *S* *My* 13 '15
 Matmon touring condition for 1916. *II* *diag*s Automobile 31:121 *Je* 31 '14
 Marmon 11 with body refinements and detail improvements. *II* Horseless Age 35:473 *Je* 23 '15
 Maxwell for 1916 with improvements and lower price. *II* Horseless Age 35:160 *Il* *Ag* 1 '15
 Maxwell, 1916, larger price boxes. *II* *diag* Automobile 32:148-50 *Il* *Jl* 22 '15
 Maxwell racers—some technical details. *II* Horseless Age 35:119-20 *Ap* 11 '15
 Maxwell designed for 100 miles per hour. *II* Automobile 32:628-30 *Mr* 26 '15
 Meyer 30 a low-priced light car. *II* Horseless Age 36:196 *Il* *Jl* 25 '15
 Meyer shows new models. *II* Horseless Age 36:32-3 *Ja* 6 '15
 Miscellaneous mechanical details of show cars. A. C. Woodbury. *II* *diag*s Horseless Age 32:17-21 *Ja* 4 '15
 Mitchell adds six rolling for \$1,555. *II* Automobile 31:1082-3 *D* 10 '14
 Mitchell brings out eight and six. *II* Automobile 32:1120-3 *Ja* 31 '15
 Mitchell six for 1916 with a long stroke high speed motor. *II* Horseless Age 35:772 *Je* 9 '15
 Moline Knight featured by simplicity. *II* *diag*s Automobile 32:338-9 *Ag* 13 '15
 Moline Knight 40. *II* Horseless Age 35:691-2 *My* 9 '15
 Monarch adds eight cylinder motor; Herschell-Mullman motor interchangeable with continental six in same chassis. *II* *diag*s Automobile 32:492-3 *Mr* 16 '15
 Moon cars have continental motors. *II* *diag* Horseless Age 31:325 *Ag* 26 '14
 Moon 1916 line comprises a 6, 30 and a 40. *II* Horseless Age 35:874-5 *Je* 30 '15
 Motor cars 1916. Engineer 112:29 *Ja* 1 '15
 National adds a twelve and a six. *II* Automobile 32:840-1 *My* 27 '15
 National highway twelve. *II* *diag* Automobile 32:336-7 *Ag* 19 '15

Automobiles *Continued*

National highway twelve. *II Horseless Age* 36:232-3 J 1 '15
 New car exhibits at Chicago. *II Horseless Age* 35:85-6 J 20 '15
 New car models seen at the Palace show. *II dlags Automobile* 32:1-4 J 7 '15
 Niagara four European touches. *II Automobile* 33:118-19 J 2 '15
 Nine new cars on display at Chicago. *II Automobile* 32:178-81 J 28 '15
 1915—a 7-league stride: eight-cylinder motors—sixes for less than \$800—vacuum feed—spiral bevel gears. *Automobile* 31:1187-93+ D 31 '14
 Oakland adds eight-cylinder model. *II Automobile* 33:780-91 O 28 '15
 Oakland four, 1916. *II Automobile* 32:948-50 My 27 '15
 Oakland model 38 for 1916. *II Horseless Age* 35:676-7 My 19 '15
 Oakland six new low-priced. *II dlags Automobile* 32:1026-9 J 10 '15
 Oldsmobile eight, model 44 with helical final drive. *II Horseless Age* 36:362-3 J 15 '15
 Oldsmobile eight replaces six new four. *II dlag Automobile* 32:937-9 J. My 27 '15
 Oldsmobile light eight. *II Automobile* 33:746-7 O 21 '15
 Oldsmobile the model 43 for 1916. *II Horseless Age* 35:813 J 16 '15
 Overland brings out new six. *II Automobile* 33:278-9 Ag 12 '15
 Overland 8 to sell at lower figure. *II Horseless Age* 35:736-7 J 2 '15
 Overland four. *II dlags Automobile* 33:928-31 N 18 '15
 Overland four price lower. *II dlag Automobile* 32:978-81+ J 3 '15
 Overland model 86, a six-cylinder car of 45 h. p. *II Horseless Age* 36:182-3 Ag 15 '15
 Owen magnetite car. *II dlag Horseless Age* 34:213-14 D 23 '14
 Owen magnetite; five cars make 800-mile run through mountain sections. *II Automobile* 33:616-17 H 30 '15
 Packard brings out twin six chassis. *II dlags Automobile* 32:932-8 My 37 '15
 Packard with 12 cylinders. *II dlags Horseless Age* 35:702-4 My 26 '15
 Paige company enters the field of sixes. *II Horseless Age* 34:807-8 D 23 '14
 Paige has new block six at \$1,395. *II Automobile* 31:1038-9 D 3 '14
 Paige model, the 9-30 announced for 1916. *II Horseless Age* 35:766-7 J 9 '15
 Pathfinder twelve and six for 1916. *II dlag Automobile* 32:1004-6+ J 17 '15
 Peerless 48-six. *II Horseless Age* 34:321 Ag 26 '14
 Peerless four, \$2,000—six at \$2,250. *II Automobile* 31:1034-7 D 3 '14
 Pillgrim, a new light car from Detroit. *II Horseless Age* 34:915 D 23 '14
 Pilot introduces an eight and a popular priced six. *II Horseless Age* 36:314-15 O 1 '15
 Porter-Knight speed creations. *II dlags Automobile* 32:789-93 My 6 '15
 Premier sextette with Timken axles and worm bevel drive. *II Horseless Age* 35:34-5 J 6 '15
 Premier—some features of the new models. *II Horseless Age* 35:569 Ap 28 '15
 Pros and cons of automobile construction features. *II dlags Horseless Age* 34:938-54 D 30 '14
 Pullman junior. *II Horseless Age* 34:909 D 23 '14
 Royal eight cylinder model and two Royal four. *II Horseless Age* 36:106-7 J 1 28 '15
 Royal 1916 line in an eight and two four. *II Automobile* 32:106-7 J 29 '15
 Remington cars. *II plan Horseless Age* 35:146-7 J 27 '15
 Rec design—many unique points. *II dlags Automobile* 32:458-62 H 9 '15
 Rec five-passenger six for \$1,385. *II Automobile* 31:1063-5 D 10 '14
 Rec six-cylinder. *II dlag Horseless Age* 34:877-9 D 10 '14
 Review of the year 1914: automobiles. *Sci Am* 112:7 J 2 '15
 Riviera models and a light 80 Fiat for 1916. *II Horseless Age* 35:848-9 J 28 '15
 Saxon adds roadster on six chassis. *II dlags Automobile* 33:556-9 J 23 '15

Saxon four and six models—refinements. *II Horseless Age* 36:310-11 O 1 '15
 Saxon six to sell for \$785. *II Automobile* 31:1037 D 3 '14
 S. A. B. committee reports and papers. *Automobile* 32:1057-61, 1088-90, 1103-5 J 17-24 '15
 S. A. B. papers and the discussions at the professional sessions. *Horseless Age* 35:827-30 J 23 '15
 Sphinx car. *II Horseless Age* 34:852 D 9 '14
 Standard six and eight. *II Horseless Age* 35:468-9 Ap 7 '15
 Standard steel cars. *II dlags Automobile* 32:723-5 Ap 22 '15
 Stearns small four. *II Automobile* 33:328-9 Ag 10 '15
 Stewart motor corporation produces pleasure car. *II Horseless Age* 35:306-6 Mr 3 '15
 Stewart six—a new chassis. *II Automobile* 32:380-1 F 25 '15
 Studebaker in eleven types on two chassis-models. *II Horseless Age* 35:870-8 J 30 '15
 Studebaker refines four and six. *II dlag Automobile* 33:30-2 J 1 '15
 Westcott concentrates on two sizes. *II Automobile* 33:238-9 Ag 5 '15
 Westcott—six and four chassis of clean design take four body types. *II dlags Automobile* 32:634-5 Ap 8 '15
 Willys-Knight price reduced. *II Horseless Age* 34:211 D 23 '14
 Willys-Knight refinements. *II Automobile* 31:126-7 D 17 '14
 Willys-Knight which is to sell at a moderate figure. *II Horseless Age* 36:344-5 J 14 '15
 Winter meeting of S. A. B. in New York. *dlags Horseless Age* 35:58-74, 110-13 J 13-20 '15
 Winton brings out smaller six. *II Automobile* 31:1172-3 D 24 '14
See also Automobile engines and other headings beginning Automobile; Cyclecars; Electric trucks; Electric vehicles; Extra apparatus; Motor; Garages; Motor buses; Motor houses; Motor cycles; Motor trucks; Steam buses; Tires (automobile)

Accidents

See Automobile accidents

Axles

Axle design for accessibility and strength. *dlags Automobile* 32:472-5 H 9 '15
 Must axles be turned askew to cushion one-wheel shocks horizontally. *Automobile* 32:593+ Ap 1 '15
 New type of American axle. *dlag Horseless Age* 35:206 F 10 '15
 Pivoted front axle design. A. C. Woodbury. *dlags Horseless Age* 35:419-20 Mr 24 '15
 Relative merits of semi, three-quarter and full-floating axles. A. M. Laycock. *dlags Horseless Age* 34:328-31 Ag 26 '14
 Sheldon worm gear axle. *II dlags Automobile* 32:946-7 My 27 '15
 Types of rear axle. *II dlags Horseless Age* 34:949-50 D 30 '14

See also Automobile patents

Bearings

Ball bearings in theory and practice. B. D. Gray. *dlags Automobile* 32:848-9, 890-9+ My 13-20 '15; Same. *Horseless Age* 35:673-5, 713-14 My 19-26 '15
 Court holds Baker front axle patent to be void. *Horseless Age* 35:285, 293-4 Mr 3 '15
 Directions for adjusting main and connecting-rod bearings. *Automobile* 31:1114 D 17 '14
 Installing the center ball bearing. *dlags Automobile* 32:192 J 28 '15
 Maximum loads on automobile road wheel bearings. H. G. Baldwin. *dlags Horseless Age* 36:319-21, 371-3 O 1-15 '15
 Most accurate automobile part: methods of ball bearing manufacture call for microscopic inspection of material and product. J. L. Claydon. *II Automobile* 32:701-5 Ap 23 '15

Bodies

Adapting the touring body for winter use. *II Horseless Age* 35:359-61 O 15 '15
 American automobile coachwork: criticism of domestic and foreign car bodies. J. J. Ida. *II Sci Am* 112:31+ J 2 '15

Automobiles—Bodies—Continued

Automobile bodies. H. J. Hayes. Horseless Age 35:59-60 Ja 13 '15
 Body improvements revealed by the show. C. S. Ricker. *diag* Horseless Age 35:12-16 Ja 6 '15
 Car bodies of 1915. H. Automobile 31:1199-1214 D 31 '14
 Closed body styles. H. Automobile 32:112-22 Ja 21 '15
 Coupé bodies for runabout use. G. J. Mercer. *diag* Automobile 31:1108-9 D 17 '14
 Development in art of body design for inclosed cars. H. Automobile 32:123-6 Ja 21 '15
 Ideal touring car body. J. J. Ide. H. *diag* Automobile 32:25 Ja 7 '15
 King cars—closed bodies. H. Horseless Age 36:173 Ag 15 '15
 Luxurious streamline body not yet built. J. E. Brasor. *diag* Automobile 33:653 O 7 '15
 Making aluminum automobile bodies. H. Iron Age 95:1213-16 Je 3 '15
 Marked improvement in body design. G. J. Mercer. H. *diag* Automobile 32:219-25 F 4 '15
 Quantify production favors metal body. H. J. Hayes. Automobile 32:37 Ja 7 '15
 Stutz features new bodies. H. Automobile 33:240-1 Ag 5 '15
 Three-quarter cabriolet coupé. G. J. Mercer. plans Automobile 32:494-5 Mr 18 '15
 Torpedo motorcar. H. Sel Am 112:346 Ap 10 '15
 Trends in touring body designs. G. J. Mercer. *diag* Automobile 33:67-9 J1 8 '15
See also Automobiles—Tops; Automobiles—Upholstery

Brakes

See Brakes, Automobile

Chassis

Aluminum in automobile chassis. A. L. Clayden. J. E. Diamond. Automobile 33:330-1 Apr 10 '15
 Chassis keeps pace with motor. J. E. Schipper. *diag* Automobile 32:882-3 My 20 '15
 Crane-implex a high power design. H. *diag* Automobile 33:414-17 F 8 '15
 Eleven new chassis seen at show. H. Automobile 32:12-17+ Ja 7 '15
 New Paterson six chassis. H. Automobile 33:388 Ag 26 '15
 Pontiac chassis for the trade. H. Horseless Age 35:434 Mr 31 '15
 Scientific chassis. A. P. Brush. H. *diag* Automobile 32:802-5 My 8 '15
 Simplex-Crane six cylinder chassis. H. *diag* Horseless Age 36:262-3 N 15 '15

Cleaning

Wind-shield cleaner invented by Prince Henry. H. Sel Am 113:284 J1 24 '15

Clutches

Brush clutch works only for one direction of rotation. *diag* Horseless Age 35:267 F 24 '15
 Capacity of leather faced cone clutches chart. Horseless Age 36:148 Ag 1 '15
 Chart for determining the capacity of dry disc clutches. Horseless Age 36:322 O 1 '15
 Friction clutches. *diag* Horseless Age 34:341-6 D 30 '14
 Notes on automobile clutches. W. F. Hernt. Horseless Age 35:787 Je 18 '15
 Remediating a slipping clutch. *diag* Automobile 33:467-8 N 9 '15

Cost

Why the 1916 cars are cheaper. A. L. Clayden. H. *diag* Automobile 33:593-7 F 8 '15
See also Automobiles—Price lists

Cost of operation

Motor vehicles in water-works service at Los Angeles. B. A. Heiny. Eng N 73:261-3 My 6 '15

Small automobile opens up new opportunities in government stream gaging work. E. A. Porter. H. Eng Rec 71:490-1 Ap 17 '15

See also Electric trucks—Cost of operation; Motor trucks—Cost of operation

Design

Automobile drafting room. R. W. Weaver. H. *diag* Horseless Age 34:232-4, 256-8, 297-8, 332-6, 368-70 Ag 6-N 2 '14

Engineering analyses. A. L. Clayden. *diag* Automobile 32:5-9, 56-9, 103-5 Ja 7 21 '15
 Entries vary greatly in displacement. H. Automobile 32:884-7 F 15 '15
 500-mile race in retrospect; engineering effect on touring car design. A. L. Clayden. Automobile 32:1016-19 Je 10 '15
 Gyrostatic action. J. C. Gray. H. *diag* Sel Am 8 79:172-3, 188 Mr 13-20 '15
 High spots in design. A. L. Clayden. Automobile 33:784-6 O 28 '15
 Maximum loads on automobile road wheel bearings. H. G. Baldwin. *diag* Horseless Age 36:219-21, 371-3 O 1-15 '15
 Motor home-car. H. Sel Am 113:278 S 11 '15
 Racing influence in design. H. *diag* Automobile 33:374-5 Ag 26 '15
 Three wheeled automobile of unusual design. H. Sel Am 113:323 O 9 '15
 Trend of design could be improved. C. E. Davis. Automobile 32:665 9 Ap 15 '15
 What the new models show in design tendencies. E. A. Stephens. Horseless Age 36, 211-13 S 1 '15

See also Automobiles—Fame, Automobiles—Weight

Differential

Differential gears of unconventional design. H. *diag* Horseless Age 36:70 J1 21 '15
 Gearless differential co. adds a type for Ford cars. *diag* Automobile 32:470 J1 Mr 4 '15
 Walter differential men irreconcilable worm. H. Automobile 32:396 Je 3 '15

Driving

See Automobile driving

Electric equipment

Automobile electricity. A. L. Clayden. *diag* Automobile 33:749 J1 21 '15
 Battery-charging methods for electric starting and lighting equipments for machine automobiles. H. Elec R & W Elec n 66:144 J1 23 '15
 Battery systems improved in detail. *diag* Automobile 32:281 F 11 '15
 18-hr electrical units standardized. H. *diag* Automobile 33:338 O 25 '15
 Car with electric magnetic lampless on a solution of the change speed gear problem. H. Sel Am 113:468 S 27 '15
 Cutoff hammer switch for preventing automobile theft. H. Elec R & W Elec n 66:255 J1 15 '15
 Electric auxiliaries on automobiles. G. T. Hammett. Elec W 61:196 S 11 19 '14
 Electric equipment for Ford cars. G. T. Hammett. Elec W 66:271 O 2 '15
 Electric gear shifter. H. Elec W 65:578 Mr 12 '15
 Electrical equipment of automobiles. A. M. Heldt. *diag* Horseless Age 34:336 J1, 628 Mr, 662-6, 692-4, 728-30, 768-81, 790-2, 822-3, 856-7, 888-91, 918-20, 975-81, 1010-2, 172-81, 210-12, 216-9, 271-7, 317-16, 314-6, 350-2, 412-16, 412-6, 476-8, 544-5, 675-81, 610-11, 654-9, 708-11, 740-3, 775-7, 810-11, 841-2, 881-3, 963-1, 475-8, 775-8, 108-9, 148-50, 174-6, 220-1, 274-6, 327-9 O 7, 21 D 30 '14, Ja 27 Ap 7, 21 Mr 6, 19-6 J1 '15
 Electrical equipment specifications, details of the electric lighting and starting systems fitted to American cars during the season. Horseless Age 36:264 J1 15 '15
 Electrical instruments in lighting and starting circuits. A. L. Clough. Horseless Age 34:274 J1 23 '14
 Electricity in the manufacture of electrical machinery. H. Elec R & W Elec n 66:279 F 12 '15
 Function of the circuit breaker. *diag* Horseless Age 36:318 O 1 '15
 Generator, a self starting and lighting system for Ford. H. *diag* Horseless Age 35:417 Ap 21 '15; *same*. Automobile 32:743 Ap 22 '15
 Generator, a single unit starting and lighting system for moderate priced automobiles. M. J. Pitch. H. *diag* Horseless Age 34:286 7 My '15
 Could improved starting, lighting and ignition battery. H. Horseless Age 35:461 Mr 26 '15
 Gray & Davis variable speed generator. H. Automobile 31:105-7 J1 17 '14

Automobiles—Electric equipment—Continued

Kemco electric starting-lighting system for Ford cars. *Il Horseless Age* 35:296 Ja 20 '15
 Lifting brush protects generator circuit. Automobile 33:158-9 Ji 22 '15
 Lighting and starting systems—single and double unit. *Horseless Age* 34:942-4 D 30 '14
 Method of connecting up condenser. *Horseless Age* 35:31 Ja 6 '15
 Nash electric generator and igniter. *Il Horseless Age* 35:377 Mr 17 '15
 New electrical equipment. Automobile 32:28-9 Ja 7 '15
 New Westinghouse electrical equipment for gasoline automobiles. *Il Elec R & W Elec'n* 67:135-6 Ji 17 '15
 1916 model electrical equipment for automobiles. *Il Elec W* 66:100 Ji 10 '15
 Probable break in line winding. Automobile 33:334-5 Ag 19 '15
 Remy products for 1915. *Il Horseless Age* 34:975-6 I 30 '14
 Remy two-armature lighting and starting unit on national cars. *Il diag Horseless Age* 34:854 D 9 '14
 Repairs of automobile electric equipment. A. L. Clough. *Horseless Age* 34:811-12 D 3 '14
 Samson electric system for cars under 25 hp. *Il diag Automobile* 33:509 S 16 '15
 Shinn-Huff motor-generator. *Il diag Automobile* 31:1266 D 31 '14
 Spittler-Apelo starting and lighting for Fords. *Il diag Automobile* 32:1128 Je 21 '15
 Starting and lighting for 1915. *Il diag Automobile* 32:144-9, 290-8 Ja 21-28 '15
 Vulcan gearshift stronger and lighter. *Il diag Automobile* 31:1272-3 I D 31 '14
 Westinghouse electric equipment for Ford cars. *Il Elec R & W Elec'n* 67:384-5 Ag 28 '15
 Wiring diagram of Shinn-Huff starting, lighting and ignition system. *Horseless Age* 36:57 Ji 14 '16
 Wiring diagram showing the installation of the ammeter on the Delco system. Automobile 33:511 S 16 '15

See also Automobile engines—Ignition devices; Automobiles—Lighting; Automobiles—Starting devices; Automobiles—Transmission; Magnetos

Engines

See Automobile engines

Equipment and supplies

Autorecno. *Horseless Age* 35:463-4 Ap 7 '15
 Business in equipping cars with new accessories. A. L. Clough. *Horseless Age* 35:493-4 Ap 14 '15
 Dyneto for Fords. *Il Automobile* 32:1036 Je 10 '15
 Equipping the automobile for travel. C. A. Byers. *Il Sci Am* 112:200 F 27 '15
 Flexible leather shaft couplings replace metal type. *diag Automobile* 32:272-3 F 11 '15
 New accessories at the Chicago show. *Il diag Automobile* 32:184-5 Ja 28 '15
 New electrical equipment. Automobile 32:28-31 Ja 7 '15
 New ideas in automobile accessories. *Il Sci Am* 112:16-17 Ja 2 '15
 Novel automobile accessories. *Il Sci Am* 113:145 Ag 14 '15
 Parts exhibits at the Chicago show. *Il Horseless Age* 35:87-90 Ja 20 '15
 Portable geared hand-power hoist. *Il Eng N* 74:804 O 28 '15; *Eng & Mtn J* 100:733 O 30 '15
 Solving the baggage problem. *Il Automobile* 32:366-9 F 25 '15
 Speedometers and other indicating instruments at the show. H. I. Brown. *Il Horseless Age* 35:22-3 Ja 6 '15
 Storing the tourists' needs. S. Peiman. *Il Sci Am* 112:400-1 My 29 '15
 What the necessary exhibit will disclose: an alphabetically arranged forecast. *Il Horseless Age* 34:556-66 I 30 '14

See also Automobile horns; Automobile mufflers; Automobiles—Electric equipment; Automobiles—Fans; Automobiles—Feeding systems; Automobiles—Indicators; Automobiles—Windows; Brakes, Automobile; Carburetors; Shock absorbers; Tire pumps; Tires (automobile)

Exhibitions

Boston's combination show; list of exhibitors. *Il Horseless Age* 35:324b-324d Mr 10 '15
 Business and entertainment vied at Chicago. C. S. Ricker. *Il diag Horseless Age* 35:158-60 F 3 '15
 Closing the national show circuit. *Il diag Automobile* 32:175-7 Ja 28 '15
 How to get the most from the shows. *Horseless Age* 34:943 I 9 '14
 Motor car exhibits at the Panama exposition. C. L. Edholm. *Il Horseless Age* 35:35-9 Ji 14 '15
 N. A. C. C. exhibitors. plans Automobile 32:701-5 O 14 '15
 New car exhibits at Chicago. *Il Horseless Age* 35:85-90 Ja 20 '15
 New car models seen at the Palace show. *Il diag Automobile* 32:1-4 Ja 7 '15
 Palace ready for fifteenth national show. *Il Horseless Age* 34:933-7 D 30 '14
 Palace show a brilliant spectacle. J. T. Shaw. *Il Horseless Age* 35:9-11+ Ja 6 '15
 Second national show of sensum opens at Chicago. C. S. Ricker. *Il Horseless Age* 35:131-4 Ja 27 '15
 329 cars and trucks at Boston show. *Il Automobile* 32:442-4+ Mr 11 '15

Fans

Fan design remains unstandardized. J. 13; Schipper. *diag Automobile* 33:654-5 O 7 '15

Feeding systems

Carter tank. *diag Automobile* 32:1066 Je 17 '15
 Fuel feed. *Horseless Age* 34:952 D 30 '14
 New suction feed system. *Il Automobile* 32:290 F 11 '15
 Stewart vacuum feed gasoline system. *diag Horseless Age* 35:55 Ja 13 '15
 Vacuum gasoline feed for automobiles. G. Adams. *Sci Am* 113:95 Ji 31 '15

Fenders

See Motor trucks—Fenders

Frames

Frame sections report. *diag Horseless Age* 35:73 Ja 13 '15
 Stamping plant for quantity production. F. L. Frontina. *Il Iron Age* 95:480-94 Mr 4 '15

Fuel

See Automobile engines—Fuel

Gearing

Chain camshaft drives pros and cons of roller and silent type chains. A. L. Clayden. Automobile 32:712-13 Ap 22 '15
 Development of heat treatment. R. R. Abbott. *Il Sibley J* 29:160-6 F 15; Abstract. Met & Chem Eng 13:390-1 Je 15
 Eliminating the greatest problem. Automobile 32:540-1 Mr 25 '15
 Friction drive. *Horseless Age* 35:374 Mr 17 '15
 Front wheel drive design. *diag Automobile* 32:683 Ap 16 '15
 Gear box location; final drive. *Il Horseless Age* 34:946-8 I 30 '14
 Gear calculations. *Horseless Age* 35:781 Ja 9 '15
 Gears are smaller and lighter. *diag Automobile* 33:917-20 N 18 '15
 Lapping bevel driving gears. A. A. Dowd. *diag Horseless Age* 35:218-17 F 10 '15
 Magnetic gear shift for gasoline automobile. *Il Elec R & W Elec'n* 67:857-8 N 6 '15
 Making the spiral bevel gear. *Il Automobile* 32:357-60 F 25 '15
 Manufacture of worm gearing by a new process: a comparison of the straight and hourglass type of worms. C. T. Myers. *Il diag Horseless Age* 35:116-21 Ja 20 '15
 Motor speeds and gear ratios. Automobile 32:1030 Ja 10 '15
 Russell internal gear drive axle. *diag Automobile* 32:313 F 18 '15
 Silent chain drives on increase. *diag Automobile* 32:314-15 F 18 '15
 Spiral type bevel gears for automobile drives. A. L. Stewart. *Horseless Age* 35:801-2 Ja 16 '15; Discussion. Automobile 32:1110-11 Ja 24 '15
 Vulcan gearshift stronger and lighter. *Il diag Automobile* 31:1272-3+ D 31 '14

Automobiles—Gearing—Continued

Worm gear efficiency. C. H. Calkins. *II Horseless* Age 34:982 D 30 '14

See also Automobiles—Clutches; Automobiles—Differential; Automobiles—Steering gear; Automobiles—Transmission; Motor trucks—Gearing

History

Rise of the automobile. *II Sci Am* 112:521-2 J-Je 5 '15

Inspection

Can we improve the inspection system? D. R. Stevens. *II Horseless* Age 36:65-8, 101-1 J-J 21-28 '15

Lighting

Automobile searchlamp with outside focusing adjustment. *II Elec W* 66:880-1 C 16 '15
Bend headlight supports to throw glare on road. C. H. Kirby. *Automobile* 32:625 Ap 8 '15

Bosch standard lighting outfit. *II plan Automobile* 33:966-7 N 25 '15

Bulbs, sockets, lamps and dimmers. P. M. Holdt. *diag Horseless* Age 35:775-7, 810-11, 845-7 Jc 9-23 '15

Culver-Stearns Ford lighting outfit. *diag Horseless* Age 35:377-8 Mr 17 '15

Deflecting rays downward. *Sci Am* 112:345 Ap 10 '15

Electric headlights on new Fords. *II Automobile* 32:679 Ap 1 '15

Glare-free electric lamps for automobiles. *II Elec R & W Elec N* 66:910 N 13 '15

Report on British lamp standards. *diag Automobile* 32:480 Mr 18 '15

6-volt single-wire lighting leads. *diag Automobile* 32:674-5 Ap 15 '15

Suggested remedy for the headlight nuisance. A. C. Stewart. *Horseless* Age 35:141-5 Jc 27 '15

Swivel-bulb automobile lamp reducing glare. *diag Elec W* 66:1222 N 27 '15

Wiring of battery lighting system. *plan Automobile* 33:201 J 29 '15

Lubrication

Chart illustrating the proper lubrication of the standard motor car chassis; with explanation. *II Sci Am* 112:18 Jc 2 '15

Oiling system of 1913 Pope-Hartford. *plan Automobile* 32:850 My 13 '15

Preventing leakage of grease from rear axle and over-oiling of front cylinder. *Horseless* Age 35:176-7 Ak 15 '15

Manufacture

Aluminum in automobile chassis. A. L. Clayton. *J. M. Diamond. Automobile* 33:330-1 Ag 10 '15

Assembling motor cars in Packard plant. *II Iron* Age 95:873-6 C 11 '15

Automobile foundry core-room economies. *II Iron* Age 95:131-3 Jc 14 '15

Die casting vs. machining. J. M. Schipper. *II diag Automobile* 33:461-4 N 9 '15

Electricity in an automobile assembling plant. *II Elec R & W Elec N* 66:329-31 F 20 '15

Electricity in the automobile industry. F. M. Kimball. *Gen Elec R* 18:550-2 Jc 16 '15

Ford methods and the Ford shops. H. L. Arnold. *F. L. Paurore. II Iron* Ag 47:1-25, 179-203, 321-58, 507-32, 867-88, 867-88; 48:33-60, 187-212, 338-66, 524-50, 704-21, 859-76; 49:67-87, 194-201, 372-93 Ap '14 Jc '15

Franklin—careful design gives lightweight. *diag Automobile* 33:639-42 C 7 '15

Heat-treating plant for forge shop work. *II Iron* Age 94:1284-6 D 3 '14

Heavy machinery used in building automobiles. *Sci Am* 8 80:279 C 30 '15

How scientific design and use of aluminum alloys will cheapen motoring. A. L. Clayton. *II diag Automobile* 33:235-20 Ag 5 '15

Malleable iron castings for the automobile industry. R. Moldenke. *Horseless* Age 35:49-78 Jc 13 '15; *Same. Iron Tr R* 55:231-4; *Discussion. R. Thuermer. 55:234-4 Jc 28 '15*

Modern automobile forge shop; Packard motor car co., Detroit. F. A. Churchill, Jr. *II plans Iron Tr R* 57:829-32-4 C 28 '15

Quantity production favors metal body. H. J. Hayes. *Automobile* 32:37 Jc 7 '15

Rapid finishing of automobile castings. *II Iron* Age 94:1282-3 D 3 '14

Stamping plant for quantity production. F. L. Prentiss. *II Iron* Age 95:189-91 Mr 1 '15

Steel for modern motor cars. *II Iron Tr R* 55:263-7 F 4 '15; *Abstract. Ind Eng Inscr* F '15

Steel in pathology. J. E. Schipper. *II diag Automobile* 32:496-800 My 6 '15

Twin machines for Packard rear axles. *II Automobile* 32:681 Ap 15 '15

Types of automobile crankshaft lathes. J. C. Spence. *Mach* 21:569 Mr '15

Types of automobile crank shaft lathe; universal machines for the crankshaft manufacturer and special equipment for the automobile builder. W. C. Strum. *II Mach* 21:400-3 Jc 15 '15

See also Automobile—Chassis—Manufacture; Automobile—Factories; Automobile—Inspection; Automobile—Spares; Automobile—Standards

Mufflers

See Automobile mufflers

Name

Wide variation in the individual nomenclature of motor car motor. *Horseless* Age 36:230-1 J 15 '15

Painting

Brushless paint shop. C. D. Babcock. *II Iron* Age 95:755-6 C 7 '15

Eliminating dirt in body chambers. F. V. Spencer. *II plan Automobile* 33:100-1 Jc 2 '15

Ford methods and the Ford shops. F. L. Paurore. *II Iron* Ag 47:367-87 Ap '15

Radio process painting car in 3 days. *II Automobile* 32:778-80 F 11 '15

6000-kw electric painting booth. *II plan Elec W* 66:1702-3 Jc 26 '15

Using electric ovens for enameling. *II Iron Tr R* 57:215 J 29 '15

Price Data

Price classification of 1914 cars. *Automobile* 31:1215-19 J 31 '14

Price list and performance table of 1914 American pleasure cars. *Sci Am* 112:261 Jc 2 '15

Radiators

Front position for radiator. *II Hoff Automobile* 32:714 Ap 29 '15

Older radiator layouts poor circulation. *Automobile* 31:1277-19 J 31 '14

Large radiator capacity does not mean efficiency. H. Green. *II Automobile* 31:1627-1 D 10 '14

Radiators at H. A. E. metropolitan branch. *Horseless* Age 35:114-15 Jc 29 '15

Radiators and designed by formulas. *Automobile* 32:1124-5 Jc 21 '15

Repairing and testing automobile radiators. *diag Metal Work* 51:113 Mr 26 '15

Two machines for automobile radiators. *II Iron* Age 95:242-3 J 22 '15

Registration

Pennsylvania has automatic registration. G. A. Quicks. *Automobile* 32:161 Jc 24 '15

Remodelling

Remodelling cars for commercial uses. *diag Horseless* Age 35:629-10 J 2 '14

Repair

Colours from the repair shop. A. P. Press. *Mach* 21:576 Mr '15

Mobile repair shops give war service. W. P. Bradley. *Automobile* 32:584-5 N 11 '15

Turning and shifting starter commutators in the repair shop. A. A. Hampton. *Horseless* Age 35:197 F 10 '15

See also Automobile engines—Repair

Safety devices

See also Automobile signals

Second-hand

Buying a second-hand automobile. V. W. Page. *diag Sci Am* 8 75:260-2 Ap 24 '15

What becomes of the second-hand automobile? *II Sci Am* 112:455-6 My 8 '15

Service stations

See Automobile service stations

Automobiles - Continued**Shipment**

Shipping 2000 cars a day. M. Braun. II plan
Automobile 33:646-9 O 7 '15

Specifications

Passenger cars for 1915 listed with their principal specifications. Automobile 31:1220-7 D 31 '14

Springs

Compensated cantilever eliminates roll. diags
Automobile 32:180-8 Ja 23 '15
Compensated cantilever springs. II Horseless
Age 35:218-19 F 10 '15

Continuous rotary heat-treating furnace. P. M. Paul. II Iron Age 96:569 S 9 '15; Same. Horseless Age 36:234 S 1 '15; Same. Sci Am 113:363 O 23 '15

Improvement of spring systems. diags Automobile 31:987-84, 1068-71, 1274-8; 32:28-7, 196-8, 280-3, 321-34, 361-4, 462-4, 590-3, 676-7, 764-74, 864-64, 990-3 N 26, D 10, 31, '14, Ja 7, 28, F 11-26, Mr 11, Ap 1, 15, 29, My 13, Ja 3 '15; Discussion. 32:502-4, 593, 630-3, 723-4, 810-11, 901-3 Mr 18, Ap 1-8, 22, My 6, 20 '15

New system of spring suspension for motor cars. II Engineer 119:142 F 5 '15

Partial and total deflections of leaf springs en masse. D. Landau and A. Golden. Horseless Age 35:104-7, 163-4, 213-16, 250-2, 278-81, 316-18, 383-6, 416-18, 447-9 Ja 20-27, F 10-24, Mr 3, 17-31 '15

Rear springs. diags Horseless Age 34:952-3 D 30 '14

Relative deflections of semi-elliptic and floating cantilever springs. A. Golden. Horseless Age 35:266-7 F 24 '15

Science in spring manufacture. A. L. Clayden. II Automobile 32:835-40 My 13 '15

Scientific manufacture of automobile springs. J. C. Arnold. II Horseless Age 34:921-3 D 23 '14

Simple machine for comparing spring action. H. Pastoriza. II Automobile 33:707-8 O 14 '15
Weight and speed suspension factors; discussion. Automobile 32:1118-19 Ja 24 '15

Standards

Eight S. A. E. standard reports. A. L. Clayden. Automobile 32:745-50 Ap 29 '15

Iron design remains unstandardized. J. B. Schipper. diags Automobile 33:854-5 O 7 '15

Mid-west S. A. E. section in Chicago. diags Automobile 33:736-9 O 21 '15

New S. A. E. standards. Horseless Age 34:330-8 Ag 26 '14

New S. A. E. standards recommendations. diags Horseless Age 35:831-44 Ja 23 '15

Report of standards committee of S. A. E. Automobile 32:33-6 Ja 7 '15

S. A. E. advances. Automobile 31:1148-9 D 24 '14

S. A. E. standards committee meeting at Detroit. Horseless Age 35:576-6 Ap 28 '15

S. A. E. standards committee work. Automobile 32:1112-13 Ja 24 '15

S. A. E. winter session produces six new standards. Automobile 32:83-6 Ja 14 '15

Standardization work in Great Britain. Horseless Age 36:100 J1 28 '15

Starting devices

Delco wins in self-starter patent suit. Horseless Age 35:324-324a Mr 10 '15

Misernann device starts heavy motor when cranked slowly by hand. II diags Automobile 33:431 S 2 '15

Momentary current of starting motors. B. F. Bailey. Horseless Age 35:850 Ja 23 '15

Starter driven. P. M. Heldt. diags Horseless Age 36:47-8, 72-3, 108-9, 148-50 J1 14-Ag 1 '15

Starting an automobile by wireless waves. Sci Am 113:323 O 9 '15

Starting motors. P. M. Heldt. diags Horseless Age 35:882-3, 36:20-1 Ja 30-J1 7 '15

Stewart adds Ford starter. II Automobile 33:712 O 14 '15

Statistics

See Automobile industry

Steering gear

Improving the steering. A. L. Clayden. diags Automobile 33:407-10 S 2 '15

Pivoted front axle design. A. C. Woodbury. diags Horseless Age 35:410-20 Mr 24 '15

Steering gears offer many problems. A. L. Clayden. diags Automobile 33:913-16 N 18 '15

Steering pivots. C. E. Duryea. diags Horseless Age 35:490 Ap 14 '15

Steering knuckles

Steel for steering knuckles. W. F. Lake. II Iron Tr R 56:611-12+ Mr 25 '15

Stopping

Power required to stop an automobile. W. T. Francis. diags Sci Am S 78:406 D 28 '14

Taxation

Power formulas used for taxation in different countries. Automobile 33:160-1 Ja 21 '15

Terminology

S. A. E. makes progress in nomenclature work. Horseless Age 36:147 Ag 1 '15

S. A. E. suggests standard names. Automobile 33:303 Ag 13 '15

Standardizing names of parts. Automobile 33:236-7 Ag 5 '15

Testing

Cadillac 8 averages 72.49 miles per hour in A. C. A. tests. Automobile 33:743 O 21 '15

Certified tests by dealers as sales helps. Horseless Age 35:597-8 My 5 '15

Franklin dealers average 32.1 miles per gallon in fuel economy test. Automobile 32:820 My 6 '15

Measuring automobile efficiency. A. B. Browne and E. L. Lockwood. II Automobile 32:374-6 F 25 '15

Official high gear test of Marmon car. II Horseless Age 35:691 My 5 '15

Test automobiles in Detroit on artificial hill. II Eng Rec 72:350 S 18 '15

Tires

See Tires (automobile)

Tops

Rex convertible top - Sedan or open car. II Automobile 33:342 Ag 19 '15

Top and upholstery often neglected. M. C. Hilliek. Automobile 31:1024-5 D 3 '14

Two demountable top designs. C. J. Mercer. II Automobile 33:963-5 N 25 '15

Transmission

Argo transmission features. Automobile 33:111 J1 15 '15

Car with electro-magnetic transmission; a solution of the change-speed gear problem. II Sci Am 113:405 N 27 '15

Correct propeller shaft layout. C. W. Spicer. diags Automobile 32:379 F 25 '15

Electrical transmission at S. A. E. Metropolitan section monthly meetings. Horseless Age 35:319-20 Mr 3 '15

Friction losses in the universal joint: abstracts. P. R. Walker and W. J. Malcolmson. Iron Age 94:1438-9 D 24 '14; Am Soc M 16 J 37:17-20 Ja '15; Automobile 32:378-9 F 25 '15

Hydraulic transmission. diags Horseless Age 35:234-5 F 17 '15

Owen magnetic; five cars make 800-mile run through mountain sections. II Automobile 33:616-17 S 30 '15

Owen magnetic makes progress. II diags Automobile 33:102-5 J1 15 '15

S. A. E. gas-electric committee reports. diags Automobile 32:401-4 Mr 4 '15

Universal joint efficiency. C. W. Spicer. Horseless Age 35:74 Ja 13 '15

Upholstery

Ford methods and the Ford shops. P. L. Faurote. II Eng M 49:67-87 Ap '15

Top and upholstery often neglected. M. C. Hilliek. Automobile 31:1024-5 D 3 '14

Vibration

Car vibration and engine unbalanced forces. L. D. French. Horseless Age 36:52-5 J1 14 '15

Automobiles—Vibration—Continued

Engine balance and vibration. A. L. Clayden. *diag Automobile* 32:261-4, 310-13 *P* 11-18 '15

Packard uses vibration damper. *diag Automobile* 33:246 *Ag* 5 '15
 "Twelve" from the standpoint of vibration. P. M. Heldt. *diag Horseless Age* 36:271-3 *S* 15 '15

Weight

Franklin—careful design gives lightness. *diag Automobile* 33:639-43 *O* 7 '15
 How scientific design and use of aluminum alloys will cheapen motoring. A. L. Clayden. *il Automobile* 33:325-30 *Ag* 5 '15
 Weight of cars. *Horseless Age* 34:847-8 *D* 9 '14

Wheels

Autoreseue. *Horseless Age* 35:463-4 *Ap* 7 '15
 Broad demountable rim patent upheld. *il Horseless Age* 36:224 *P* 8 '15
 Perlman wins decision in long-contested demountable rim patent suit. *Automobile* 33:391-5 *Ag* 26 '15
 Pressed steel wheels for pleasure cars. C. A. Parker. *Horseless Age* 35:804 *Je* 16 '15
 Rim and wheel equipment of the General. *il* *diag Horseless Age* 35:404-6 *Mr* 24 '15
 Tires and tire sundries, rims and wheels at the New York show. H. H. Brown. *diag Horseless Age* 35:108-9 *Ja* 20 '15
 Wire wheels vs. wood wheels. G. W. Houk. *diag Horseless Age* 35:86-8 *Ja* 13 '15
 Wood wheels vs. wire wheels. R. B. Mudg. *Horseless Age* 35:63-6 *Ja* 13 '15
See also Automobiles—Axles; Tires (automobile)

Windows

Substitute for glass in automobiles. *Sci Am* 112:401 *My* 1 '15

Automobiles, Care of

Storing of a machine for the winter. *Automobile* 31:1164-6 *D* 24 '14

Automobiles, Electric. See Electric vehicles**Automobiles, Industrial**

Automobiles versus horses in road-work super-vision. E. W. James. *Eng N* 73:769 *Ap* 22 '15
 Contractor and the automobile. G. D. Griffin, Jr. *Eng R & W* 1906:68423-6 *Mr* 6 '15
 Use of automobiles in water works service at Worcester, Mass. G. W. Dutcheider. *Eng & Contr* 42:333-4 *O* 7 '14
See also Motor trucks

Automobiles, Military

Auxiliary military motor cars. *il Sci Am* 8 79:116-17 *P* 20 '15
 Belgian armored cars most efficient. W. F. Bradley. *il Automobile* 33:8-10 *Jl* 1 '15;
 Abstract. *Eng M* 50:298-100 *O* '15
 France builds armored cars. W. F. Bradley. *il Automobile* 31:1092-1101 *D* 17 '14
 French mount 75mm. gun on 30 h.p. chassis. W. F. Bradley. *il Automobile* 32:305-9 *P* 18 '15
 Military tactics and the motor. *il Sci Am* 112: 8-9 *P* *Ja* 2 '15
 Our army wireless automobiles. C. H. Glauzy. *il Sci Am* 112:478 *My* 22 '15
 Searchlight automobile for the Italian army. *il Sci Am* 113:273-4 *M* 25 '15
 War truck does 60 miles per hour. *il Automobile* 32:709 *Ap* 22 '15
See also Automobiles in war; Motor trucks, Military

Automobiles, Steam

Motor fuels. V. H. Lawen. *Am Gas Light J* 103:180-1 *M* 20 '15
 Stanley steamer has radiator condenser. *il plan Automobile* 32:506-7 *Mr* 18 '15
See also Motor buses, Steam

Automobiles and roads

Heavy motor vehicles—wheels and weights. W. W. Beaumont. *Engineer* 119:523 *My* 24 '15
 Motor truck and the road; who should pay the road tax? J. H. Harwhite. *il Sci Am* 112:86 *Jl* 17 '15
 Traffic; present tendencies, probable development. A. W. Dunn. *Good Roads* 2 9:55-8 *P* 6 '15

Automobiles in war

American ambulances in the field. *il Automobile* 32:266-8 *P* 11 '15
 Cars and trucks behind the lines. W. F. Bradley. *il Automobile* 32:536-8 *Mr* 25 '15
 Gasoline war; new of motor vehicles close to the front and of methods of keeping them in repair. *Horseless Age* 35:421 *2 Mr* 24 '15
 Military tactics and the motor. *il Sci Am* 112: 8-9 *P* *Ja* 2 '15
 Mobile repair shops give war service. W. F. Bradley. *Automobile* 32:841-5 *N* 11 '15
 Motor truck in modern military service. *il Sci Am* 8 79:286-2 *My* 1 '15
 Russia's American motor cars. W. W. Nutting. *il Horseless Age* 36:363-5 *O* 1 '15
 Saving trucks at the front in France. W. F. Bradley. *il Automobile* 33:31-5 *Ja* 14 '15
 War trucks arrive in France. W. F. Bradley. *il Automobile* 32:226 *31 P* 1 '15
See also Ambulances; Automobiles, Military; Motor cycles in war

Averages

Averages again. *J Account* 15:141 *7 D* '14

Aviation. See Aeronautics**Aviators**

Health requirements for the aviator. F. K. Schell. *Sci Am* 8 79:45 *Ja* 16 '15

Axle lighting. See Car lighting**Axles**

Car-burdened collar and webbing contain worn button and axle. A. R. Johnson. *il diag Elec Ry J* 45:394 *4 P* 6 '15
 How an axle failed in crash. *il Iron Tr R* 56:607-10 *Mr* 25 '15
 Progressive axle fracture. E. W. Miller. *Eng N* 73:537 *8 Ap* 29 '15
 Reclaiming car axles. R. W. Rogers. *diag Ry Age (Mech ed)* 58:11 *D* '14
 Study of an axle that for a motor truck. J. Younger. *il diag Am Soc M E J* 4 42:9 *Ag* '15; Same. *Iron Tr R* 56:131 *14 D* 24 '15
 Same cond. *Hot Chem Age* 26:11 *4 Ag* 1 '15; Abstract. *Iron Age* 76:7 *Jl* 1 '15; Discussion. *Am Soc M E J* 41:139 *4 Ag* 1 '15
 Thrust plate for worn car axle. *Elec Ry J* 45:635 *Mr* 27 '15
 Why did this axle break? *Eng N* 73:150 *Mr* 11 '15
See also Bearings

Axles, Automobile. See Automobiles—Axles, Motor trucks—Axles

Azimuth

Azimuth by a simple method. J. A. Macdonald. *Eng N* 74:169 *10 21* '15; Same. *Eng & Min J* 109:511 *N* 26 '15
 Azimuth observations on planets by daylight. H. V. R. Reynolds. *Eng N* 74:170 *Ap* 28 '15; Same. *Eng & Min J* 99:476 *M* 1 '14

Azulene

Blue hydrocarbon occurring in some essential oils. A. E. Cholesterol. *Am Chem Soc J* 37:167 *71*, 1637 *44 Ja*, *Je* '14

B**Baalbek**

Mysterious Baalbek, whose magnificent temples show the hands of many ages and nations. Mrs. T. E. LePage. *il Sci Am* 11 78: 407-10 *D* 26 '14

Babbitt metal

Composition of babbitt metal. H. H. Tinspin. *Elec W* 64:169 *70 Ja* 10 '15

Babylon**Antiquities**

Resurrection of Babylon. C. J. Hall. *Sci Am N* 80:66 *Jl* 31 '15

Babylonia**Antiquities**

Characteristics of hygienic ages: relics from New Mexico and from India lands. *il Sci Am* 112: 87-1 *Ja* 23 '15

Back filling. See Trenches**Bacteria**

Production of light by bacteria. F. Babbington. *il J Fr Inst* 180:516-27 *N* '15

- Bacteriological incubator**
Electric bacteriological incubator. II Elec W 66:305 Ja 30 '15
- Bacteriology**
Bacterial flora of trees and men. N. J. Maher. Sci Am 80:158-60 S 4 '15
Discoveries about bacteria. R. Lankester. Sci Am S 79:87 F 8 '15
Experiments on life without microbes. J. Boyer. II Sci Am 111:501 D 19 '14
Sampling outfit for bacterial samples. R. S. Weston. II diag Long N 72:1255 D 24 '14
Variation in bacteria. J. O. Jordan. Sci Am 113:210 S 4 '15
See also Milk—Bacteriology; Soil bacteriology; Water—Bacteriology
- Badin, North Carolina**
Factory city beautiful at low cost. II plans Iron Age 96:782-6 Ap 8 '15
- Bakeland, Leo Hendrik, 1863-**
Sketch. por Long M 50:203 N '15
- Bag houses**
Metallurgical smoke. C. H. Fulton. II diag U S Bur Mines Bul 84:44-59 '15
Treating sulphurous fumes at the Mammoth smelter. A. H. Martin. II Met & Chem Eng 12:769-70 D '14
- Baggage. See** Electric railroads—Baggage
- Baggage and express cars**
Baggage-buffer cars for the Union Pacific R. II diag Ry R 56:9-10 Ja 2 '15
Jersey Central steel baggage and mail equipment. II diag Ry Age 58:301-4 F 19 '15; Same. Ry Age (Month ed) 89:123-7 Mr '15
Steel dynamo-baggage cars for the Union Pacific R. II. II diag Ry R 56:469 Ap 3 '15
- Baghouses. See** Bag houses
- Bagley scraper. See** Road making machinery
- Bahia, Brazil**
Electrical opportunities in Brazil. II. N. Douthett. Elec W 66:425-6 Ag 21 '15
- Balze**
Facts about balze. J. Strand. Textile World 49:663-4 S '15
- Bakelite**
Bakelite suit decision. Met & Chem Eng 13: 411-14 J1 '15
- Bakers and bakeries**
Electricity in a wholesale grocery establishment. II Elec R & W Elec'n 67:503-6 S 18 '15
Electricity in bakeries. II Elec R & W Elec'n 66:715-21 Ap 17 '15
Power plant of the Acme tea company. II plans Power 40:906-10 D 29 '14
See also Flies
- Baking powder**
Determination of carbon dioxide in baking powder and carbonates. II. W. Brubaker. diag J Ind & Eng Chem 7:432-3 My '15
Egg albumin in baking powder. II. L. Jackson. J Ind & Eng Chem 6:998-1001 D '14
- Balancer sets**
Direct-current three-wire systems. G. Fox. diag Power 41:506-8 Ap 13 '15
- Balances. See** Scales
- Balancing machines**
Dynamic balancing machine. II diag Mach 22: 70-1 S '15
- Balata**
Balata industry. II Sci Am 80:172-3 S 11 '15
- Balconies**
Five examples of cantilevered auditorium balconies. diag Eng Rec 72:234-5 Ag 21 '15
- Balkan states**
Balkan frontiers; complex problems that do not conform to race distinctions. Sci Am 80:307 N 13 '15
Strategic moves of the war. M: R. Hanna. map Sci Am 113:180 Ag 28 '15
- Ball bearing separators**
Die-casting mold for ball bearing separators. II Mach 21:365 Ja '15
- Ball bearings**
Ball bearing for lighthouse use. II diag Mach 21:571 Mr '15
Ball bearing tests involve accurate apparatus. A. V. Farr. II diag Automobile 32:514-16 S 16 '15
Ball bearings for cotton mills. E. A. Allen. II Textile World 49:631-8 S '15
Ball bearings in electric motors. II diag Elec W 66:554-9 S 18 '15
Ball bearings in electric motors. F: H. Poor. II diag Gun Elec R 18:631-5 J1 '15
Ball bearings in theory and practice. R. D. Gray. diag Automobile 32:846-9, 896-9-1 My 13-20 '15; Same. Horseless Age 35:673-5, 713-14 My 10-26 '15
Ball bearings on electric railway cars; abstract. II Zehnder-Spoerry. diag Am Soc M 10 J 37:230-1 Ap '15
Design and operation of ball bearings. B. D. Gray. II Mach 21:852-4 Je '15; Same cond. Iron Age 96:300-2 Ag 6 '15
Economies of the light car and of ball bearings. A. V. Farr. Elec W 46:230-40 Ag 7 '15
Fun trouble solved by ball bearings. F. B. Rogers, Jr. II diag Textile World 49:669-71 Ag '15
Hollow steel bearing balls. M. H. Canok; L. J. Hoover. Mach 21:743-4 My '15
Ironery mill's experience with ball bearings. R. C. Byler. II Textile World 49:378-80 Je '15
Lubrication of ball bearings. A. V. Farr. Elec W 66:325-6 Ap 10 '15
Lubrication of ball bearings. L. G. Long. Mach 21:914-15 J1 '15
Most accurate automobile part; methods of ball bearing manufacture call for microscopic inspection of material and product. A. L. Clayden. II Automobile 32:701-5 Ap 22 '15
Norma ball bearings now made in America. Eng M 50:sup3-3 O '15
Pitch diameters of ball bearings. G. C. Hannemann. Mach 21:372 Ja '15
Relation between axial and radial load on ball bearings. J. Fischer-Hinnen. Am Soc M 13 J 37:288-9 My '15
Special ball bearing for lighthouse. II diag Iron Age 96:138 Ja 14 '15
Use of ball bearings on Swedish railways. diag Ry R 56:600 My 1 '15
See also Ball bearing separators; Bearings
- Ballast**
Ballasting economy. II Elec Ry J 46:682 O 2 '15
Blast furnace slag for railway ballasting. II plan Engin-eer 120:395-6 O 22 '15
Burned-clay ballast. Eng N 73:103-4 Ja 21 '15
Burnt clay or gumbo ballast. A. M. Van Aucken. Ry R 56:365-7 Mr 13 '15
Characteristics of slag and chat ballast. P. H. Hamilton. Ry Age 58:1437-8 Ja 18 '15
Cleaning stone ballast with screens. II. M. Church. II Ry Age 58:1436-7 Je 18 '15
Economical operation of a gravel ballast pit. Ry Age 59:117-19 J1 16 '15
Mechanical life of ties as affected by ballast. E. Stimson. Long Rec 71:105-6 Ja 23 '15; Same. Ry Age 58:161 Ja 22 '15; Same. Ry R 56:119-21 Ja 23 '15
Relative efficiency of various ballast materials. G. W. Vaughan. diag Ry Age 59:123-4 J1 16 '15
Report of A. R. B. A. committee. Ry R 56:400-1 Mr 20 '15
Results gained with a ballast dresser. II Ry Age 59:529-30 S 17 '15
Stone ballasting by contract. J. Evans. Ry Age 58:1436 Je 18 '15
See also Railroads—Track
- Ballistics**
Penetration of bullets. R: C. Crossman. II Sci Am 113:404 J. N 6 '15
See also Projectiles
- Balloons and airships**
Airship in the field. II Sci Am 80:300 Mr 27 '15
Government's competition for a naval dirigible. C. Henselbach. Sci Am 112:405 My 1 '15
Law of similarity and balloon models; abstract. C. Wieselsberger. Am Soc M 10 J 37: 713-13 D '15
Military value of airships. Sci Am 112:94 Ja 30 '15
Our first naval dirigible. C. Henselbach. II Sci Am 113:44 J1 10 '15

Balloons and airships—Continued

Problems of airship design and construction. *Sci Am S* 80:107 Ag 14 '15

Use of balloons during the siege of Paris, 1870-1; table and charts showing number of ascensions and results. *Sci Am S* 80:229 O 9 '15

Using air for ballast. R. H. Upson. *Sci Am S* 80:142 Ag 28 '15

Zeppelin. *Sci Am* 113:8 J1 3 '15

Zeppelin question; facts and figures indicating the number and capacity of the air fleet. G. Prado. *Sci Am S* 79:214-15 Ap 3 '15

See also Aeronautics

Balls

Turning a ball on the milling machine. G. Slinger. *Eng Mach* 21:407 Ja '15

Weight of balls or spheres. W. L. Tryon. *Foundry* 43:358 S '15

Balls, Steel

Telford ball grinding machine. C. L. Lauen. *Eng Mach* 21:311-14 D '14

Balsam

Canada balsam. *Sci Am* 112:470 My 22 '15

Baltimore, Maryland**Bridges**

Construction of the Gwynn's Falls arch bridge. *Eng Ry Age* 57:1037-10 D 4 '14

Pullway viaduct in Baltimore built on sharp curve with concrete from 705-foot tower. *Eng Rec* 71:544-6 My 1 '15

Finance

Annual budget. W. T. Childs. *Munio J* 39:515-7 O 7 '15

Sewerage

Additions to the Baltimore sewage works. *Eng Rec* 71:278-9 Ag 5 '15

Baltimore filtration plant placed in service this week. *Eng Rec* 72:369-70 S 18 '15

Baltimore sewage-pumping plant. W. O. Rogers. *Eng Power* 41:76-8 Ju 19 '15

Streets

Baltimore experience in paving street rail way tracks. H. D. Willmar, Jr. *Eng Rec* 71:884-5 My 6 '15

Paving methods in Baltimore. H. D. Willmar, Jr. *Eng & Contr* 43:314-6 O 7 '14

Water supply

Baltimore filters abound in useful kind on concrete construction and design. J. W. Armstrong. *Eng Rec* 71:581-6 My 8 '15

Baltimore water filtration plant. *Eng Mach* 21:357-11 Ap 22 '15

Design features of the Montealegre water filters. *Eng & Contr* 43:198-9 S 15 '15

Placing a jointed concrete pressure pipe inside a brick tunnel for water supply, Baltimore. *Eng Mach* 21:300-2 Mr 25 '15

Baltimore & Ohio railroad

Eighty-ninth annual report. *Eng Ry Age* 59:530-1, 938-90 N 19 '15

Magnolia cut-off improvement on the Baltimore and Ohio railroad. A. W. Thompson. *Eng Mach* 21:309-11 N 14 '15

Operation by electric on Baltimore & Ohio. *Eng Rec* 71:16451-6 N 11 '15

Baluchistan

British India. *Ind S & Sp Coms Rep* 72:471-82 '15

Balustrades. See Railings**Banana flour**

Banana flour, a new substitute for wheat and rye flour. *Sci Am* 113:35 J1 3 '15

Bananas

Unloading bananas by machinery. *Sci Am S* 79:209 Ap 3 '15

Bandages

Cameron process for stitching and winding strips for surgical bandages and other purposes. *Textile World* 48:346-50 D '14

Bank architecture. See Bank buildings**Bank buildings**

Bank lighting. P. L. Godinez. *Arch & Bldg* 47:256-61 J1 '15

Banking house of J. P. Morgan & co. *Arch & Bldg* 47:15-14 Ja '15

First national bank of Appleton, Wis. *Arch & Bldg* 46:185-8 D '14

Hartford national bank, Hartford, Connecticut; views and plans. *Arch* 21:16-18 P '15

Heavy trusses and foundation under used in steel bank building. *Eng Rec* 71:713-14 Jo 5 '15

National bank at Far Rockaway, L. I., views and plan. *Arch* 21:16 Ag '15

New quarters of the Chase national bank, New York. *Arch & Bldg* 47:15-20 Ju '15

Pumbing system in Bridgeport bank building. *Arch* 21:16 J O S '15

Portfolio of current architecture. *Arch* 21:16 Ag '15

Recent bank plans: the work of Thomas Hance Boyd, Jr. J. Klaber. *Arch Rec* 37:37-115 P '15

Remaking a building for a bank. Holbrook national bank. *Arch & Bldg* 47:16-17 J1 '15

See also Vaults

Bank protection. See Bankers' Regulation**Bankers' club of America**

Rooms of the Bankers' club of America. *Arch & Bldg* 47:17-18 M '15

Bankruptcy

United States mining statutes amended. J. W. Thompson. *Eng Mach* 21:41-2, 304-15 '15

See also Commercial law

Banks, Federal reserve. *See Federal reserve act*

Banks and banking

Banking and credit in Australia. *Arch & Bldg* 47:17-18 M '15

Federal reserve banks and the currency account. P. H. Spoker. *Arch & Bldg* 47:17-18 M '15

Inventor's bank. *Arch & Bldg* 47:17-18 M '15

War and the Federal reserve act of the United States. *Arch & Bldg* 47:17-18 M '15

See also Bank buildings; Federal reserve act

Accounting

Credits from the viewpoint of a controlled party. *Ind Eng Chem* 7:93-4 N '15

Verification of data. *Ind Eng Chem* 7:93-4 N '15

Barbed wire entanglements

Blowing up entangled wire and machinery. The police forming a bridge over a river. The French, the German and English armies. *Arch & Bldg* 47:17-18 M '15

Barford's test

Barford's test for barford. *Arch & Bldg* 47:17-18 M '15

Barges

Western river steamers and barges. *Arch & Bldg* 47:17-18 M '15

Barges, Concrete

Explosion-resistant barges. *Arch & Bldg* 47:17-18 M '15

Barges, Motor. See Motor barges**Barite**

Barite of the Appalachian states. *Arch & Bldg* 47:17-18 M '15

Barite and J. E. Givens. *Arch & Bldg* 47:17-18 M '15

Barite at Kings Creek. *Arch & Bldg* 47:17-18 M '15

Barium

Barium industry in the United States since the European war. *Arch & Bldg* 47:17-18 M '15

Two methods of separation of the metals of the alkaline earth group. *Arch & Bldg* 47:17-18 M '15

Barium sulphate

Results of mass separation work on distribution of sulfur in pyrites. *Arch & Bldg* 47:17-18 M '15

Barns. See Stables

Barometers

- Aneroid barometers in power houses. P. 11: Jameson. Power 42:204 Ag 10 '15
 Direct-reading barometer. M. Sampson. diag Power 42:164 Ag 3 '15
 Measurements for the household. II diag U S Bur Stand Chre 55:118-21 '15
 Modified precision barometer. A. F. O. Germann. II Am Chem Soc J 36:2456-62 D '14

Barrels

- New wooden barrel machine. II diag Iron Age 95:791-5 Ap 8 '15

Bascule bridges. See Bridges, Bascule**Base plates**

- Anchoring base plates for columns. D. N. Becker. Eng Rec 70:628 D 5 '14
 Anchoring base plates for columns. F. F. Allbright. Eng Rec 70:678 D 19 '14
 Inexpensive base plate pattern. S. R. Phelps. diag Foundry 43:466-7 N '15

Baseball

- Idetical ball pitchers for indoor batting practice. II Sci Am 113:364 O 23 '15
 Power of mind in baseball. A. Macdonald. Sci Am 112:462-4 My 15 '15
 Psychology of baseball. A. Macdonald. Sci Am 113:188-4 Ag 28 '15
 Psychology of batting in baseball. A. Macdonald. Sci Am 112:440-4 My 8 '15
 Statistics of baseball. A. Macdonald. Sci Am 112:418-4 My 1 '15
 Stealing bases in baseball as a psychologist sees it. A. Macdonald. Sci Am 113:53-4 J1 10 '15

Baseball grandstands. See Grandstands**Baseball parks**

- National league ball park at Boston, Mass. II diag Eng N 74:374-7 Ag 19 '15
 National league baseball park of reinforced concrete at Boston. W. H. Conant. II diag Concrete Con 7:53-5 Ag '15

Basket willow. See Osiers**Bassano dam**

- America's greatest irrigation project; Bassano dam, southern Alberta. Z. B. Black. II Sci Am 113:252-3 S 18 '15

Bat-roosts

- Municipal bat-roost. II Sci Am 113:83 J1 24 '15

Bates, Lindon Wallace, Jr.

- 1883-1915

- Sketch. por W Soc 6 J 20:548-51 Je '15

Bath cars

- Bath trains of the Russian army. II Sci Am 113:13 J1 3 '15; Same. Metal Work 84:363-4 S 17 '15

- Russian bath trains. Ity Age 58:378-9 O 26 '15

Bath houses

- Fordyce bath house, Hot Springs, Arkansas. II plans Brickb 24:283-4 N '15

Bathing benches

- Projector lighting for the protection of bathing benches. II Elec R & W Elec'n 67:485 S 11 '15

Batholith. See Boulder batholith**Bathrooms**

- High-grade bathrooms in Chicago mansion. II Dom Eng 71:37-8 Ap 10 '15

Baths, Public

- Los bathes del mar, the baths of the sea at Santa Barbara. II plan Metal Work 84:484-5 J 1 '15

- Municipal baths in the United States. II Dom Eng 71:331-4 Je 19 '15

- New municipal bath house in Cleveland. II plan Metal Work 84:180-3 Ag 6 '15

- New York city's public baths. Munic J 38:689 My 20 '15

- Public bath an Americanizer. Dom Eng 69:290 D 5 '14

- Public bathing establishments. II plans Brickb 24:13-16, pl 4, 6-7 Ja '15

- Small public bath house in Louisville, Kentucky; plumbing and heating; disposal of waste. II plan Metal Work 83:561-3 Ap 16 '15

Baths and bathing

- Lincoln baths rival continental pools. II plan Metal Work 84:307-8 S 3 '15

- Shall we take a cold bath to cool off after exercising? Sci Am 113:373 O 30 '15

- See also Bath cars; Bathrooms; Baths, Public; Shower baths; Swimming pools

Baths in public schools

- Baths in the public schools. Dom Eng 70:135 Ja 30 '15

- Shower baths in the schools. J. Graham. II diag Dom Eng 70:233-5 F 20 '15

- Shower equipment in Jersey schools. plans Metal Work 83:837 Je 11 '15

Bats

- Malarial mosquitoes as the food of bats. C. H. L. Campbell. II Sci Am 113:425 N 13 '15

Batteries (electric). See Electric batteries;

Storage batteries

Battles

See also Naval battles; War

Battleships. See Warships**Bauxite**

- Occurrence and origin of the bauxite deposits of Arkansas. W. J. Mead. pls Econ Geol 10:28-64 Ja '15

Bay windows

- Home instruction for sheet metal workers. W. Neubacker. II diag Metal Work 84:171-3, 207-8, 423-4, 581-2, 702-4+ Ag 6, S 3, O 1, N 5, D 3 '15

Bayberries

- Myrtle wax of commerce. II Sci Am S 80:301 N 6 '15

Beacons

See also Lighthouses

Beams. See Girders**Bearings**

- Automobile engine bearings. W. Betterton. Hirschless Ag 35:517-18 J, 549-51 Ap 14-21 '15

- Babbitt bearing mold. D. S. Maun. diag Mach 22:146-7 O '15

- Babbitt bearing mold. S. Sucrem. diag Mach 21:582 Mr '15

- Babbitt spindle bearing. diag Mach 21:317-18 D '14

- Bearing-babbiting furnace. J. C. Donovan. II Elec Rty J 46:153 J1 24 '15

- Bearing metal of high elastic limit. II Eng M 49:suppl-2 Ag '15

- Bearing metals. Metal Ind n s 13:473-4 N '15

- Bearings for electric motors. L. J. Adams. Am Inst E 16 Pro 34:2797-802 N '15

- Bearings for shafts, etc. diag Int Marine Eng 19:557 D '14

- Bond Brook and Nigrum oilless bearings. II Textile World 49:282-4 My '15

- Chart for safe load on journal bearings. A. M. Bennett. Mach 21:321-2 D '14

- Friction load of shaft bearings. Elec W 66:809-11 O 9 '15

- Heating of generator bearings. Elec R & W Elec'n 66:778-9 Ja 9 '15

- High speed bearings. C. Stoney. Int Marine Eng 19:570 D '14

- Hot trailer bearings. diag Ity Age (Mech ed) 89:565-6 N '15

- Hydraulic bearing-bronching machine. C. M. Peled. II Elec Rty J 46:191 J1 31 '15

- Laws of lubrication of journal bearings. M. D. Hersey. Am Soc M 15 J 37:531-7; Discussion. 37:537-8 S '15

- Lubrication of car journals. W. A. Clark. Ity Age (Mech ed) 89:19-20 Ja '15

- Lubrication of journal bearings. Iron Age 96:25-6 J1 1 '15

- Motor-bearing trimmer. E. L. Stephens. II Elec Rty J 16:111 J1 17 '15

- Need of standard railroad car-bearing alloy. R. R. Clarke. Foundry 43:457-8 N '15

- New machine for making wire rolls. II diag Iron Age 95:792-3 Ap 8 '15

- One-ball center bearing. J. S. Witt. diag Elec Rty J 46:770 O 9 '15

- Rapid analysis of bearing metals and high-copper content alloys. C. G. Latta. Met & Chem Eng 13:346-7 Je '15

- Rebabbiting journal bearings. W. L. Fulton. II diag Elec Rty J 44:1305-6 D 12 '14

- Setting up connecting-rod bearings. Automobile 33:242-3 Ag 6 '15

Bearings—Continued

Tri-city railway bearing practice. J; Sutherland. II Elec Ry J 45:844-5 My 15 '15
Types of motor axle bearings—use of different types for each half. Elec Ry J 45:760 Ap 17 '15

See also Babbitt metal; Ball bearings; Lubrication and lubricants; Roller bearings

Beaumont, Texas**Public works**

New marine terminals at Beaumont; abstracts. H. M. Harding. plan Eng N 73:1072-3 Jo 3 '15; Eng & Contr 43:sup38 My 19 '15; Eng Rec 71:721 Jo 5 '15; Int Marine Cong 20:299-300 J1 '15; Ry R 57:570-81 N 37 '15

Bedplates. See Machinery—Foundations

Beer—yeast. See Yeast

Bees

Bees in winter time. Sci Am 113:217-8 N 4 '15

Beet sugar industry. See Beets and beet sugar

Beets and beet sugar

Strontium in the beet sugar industry. H. C. Meyer. J Ind & Eng Chem 6:1036 D '14
Sugar beet cultivation in England. Sci Am N 80:11 J1 3 '15

Belgian Congo. See Congo, Belgian

Belgium

Destruction of architectural monuments in Belgium. It. A. Crann. Am Inst Arch J 3:185-6 Ap '15

Report of a German commission upon the destruction of architectural monuments in Belgium. It. D. Kohn. Am Inst Arch J 3:130-2 Mr '15

Defenses

Defense of Belgium by inundation. P. Sallor. II map Sci Am N 79:166 Mr 13 '15

Description

Belgium and some of its buildings. J; Y. Dunlop. II Bldg Age 37:33-6 Ap '15

Industries and resources

Belgian car factories intact. W. F. Bradley. II map Automobile 32:299-101 Ja 21 '15
Belgium's place in the industrial world. A. A. Snowdon. Am Ind 15:22-3 My '15
Forests of Belgium. C. H. Whitaker. II Am For 21:22-23 Ja '15
Manufacture of cheese. J. Boyer. II Sci Am N 80:440-2 J1 17 '15
Production of Belgian industry is complete. D; E. Sussner. Iron Age 95:301-6 Ap 22 '15

Social conditions

Housing reform in Belgium. C. Aronovici. II Am Inst Arch J 2:568-72 D '14

War relief

World's largest soup kitchen. Sci Am 112:329 Ap 2 '15

Bells

Cross-section of bell founding arrangement. J. J. Schipper. diag Automobile 33:370 Ag 26 '15

Bells, Electric. See Electric bells

Belting

Belt driving. H. T. Millar. diag Engineer 119:296-7, 421-2 Ap 23-26 '15
Belt shifter. II Ry Age (Mech ed) 89:512-4 O '15

Belting calculations. E. O. Watrous. Power 41:543-4 Ap 20 '15

Centrifugal effect on belts. C. A. Hirschberg. II Power 40:927 D 29 '14

Conveyor-belt calculating chart. J. D. Mooney and D. L. Barnell. Am Inst Min E 101:105; 1937-9 N '15; Same. Eng & Min J 100:562-3 O 2 '15; Same. Met & Chem Eng 12:818 19 N 1 '15; Abstract. Am Soc M E J 37:810-11 O '15

Device for taking slack out of belts. II Iron Age 95:1240 N 25 '15

Driving belts. W. T. Matlack. Elec R & W Elec'n 57:973-4 N 27 '15

Effect of relative humidity on an oak tanned leather belt. W. W. Bird and F. W. Roys. II Am Soc M E J 37:447-9 Ag '15; Same. Iron

Tr R 56:1315-17 Jo 24 '15; Same. Power 42:169-71 Ag 3 '15; Summary. Iron Age 96:236-7 J1 1 '15; Discussion. Am Soc M E J 37:143-51 Ag '15

Largest Lenix drive in the United States. II diag Power 42:230-1 Ag 17 '15

Leather belts at Panama exposition. II plan Iron Age 95:564 Mr 11 '15

Lenix belt wrapper. II Eng M 49:sup1-2 Ap '15

Lenix drive. II Eng M 49:sup2-3 Ag '15

Manufacture of leather belting. P. H. Small. Am Soc M E J 37:679-82 D '14

Paschke adjustable sheet metal guard for belts. diag Iron Age 96:973-4 O 28 '15

Metal Work 84:582 N 5 '15

Quarter-turn belt. W. E. Schaphorst. diag Power 42:556-6 O 19 '15

Rubber-belt data. Eng & Min J 98:1098 D 19 '14

Safety belt shifter. II Elec R & W Elec'n 67:635 O 2 '15; Power 42:608 N 2 '15. Ry Age (Mech ed) 89:597 N '15

Static electricity in a textile mill. W. T. East. diag Elec R & W Elec'n 66:231 Ag 7 '15

Study of belt drives. M. Sampson. Mach 71:805-6 Jo '15

See also Pulleys; Rope driving; Shifting

Belting, Steel

Steel-band power transmission; advantages over belt and rope shown in Germany. P. G. Brucker. Eng M 101:60-1 Ag '15

Belting, Woven

Philobuck of belting fabric. diag Textile World 1936:1-2 S '15

Benchies, Concrete

Concrete junk yards. W. H. Conant. II diag Munic J 38:592-3 Ap 29 '15

Benchmarks

Granite bench markers on pile. C. H. Adams. diag Eng N 31:115 M1 1 '15

Improved method of setting bench marks for determining hydraulic slope in channels. II Eng & Contr 44:241 O 6 '15

New street line monuments at Pittsburgh, Pa. diag Eng & Contr 43:51-2 Jo 3 '15

Procter level benchmark. New York city. diag Eng N 71:227-8 D 1 '14

Bending machines

Bending bows for vehicle tops. II 1934 Am 111:411 D 19 '14

Curling roll with power tender. diag Ry Age 57:117-18 18 '14

Double-lever machine for bending rods. II Iron Age 94:154 Jo 10 '15

Improved motor driven pipe bending machine. II Elec W 62:125 Jo 3 '15

Machine bends six reinforcing bars at a time. II Eng Rec 71:214 F 13 '15

Machine makes anthracite pipe bends. II Automobile 37:552-3 Mr 25 '15

New hydraulic pipe bending machine. II Iron Age 95:291 F 4 '15

30-ton hydraulic pipe bender. II Int Marine Eng 19:278 Jo '15

Benzaldehyde

Action of chloral, bromal and benzaldehyde on the polyvinyl hydrochloride in the presence of aluminum chloride. II H. Frankfurter and W. Kitzelovsky. Am Chem Soc J 41:476-82 F '15

Benzalhydantoin

Identification of hydantoin, benzaldehyde and identification of benzalhydantoin. T. H. Johnson and J. E. Hater. Am Chem Soc J 37:552-5 F '15

Benzene

Freezing point of benzene as a fixed point in thermometry. T. W. Richards and I. W. Shields. Am Chem Soc J 36:1879-82 S '14

Interpretations of some stereochemical problems in terms of the electronic conception of positive and negative valences. II H. Pry. Am Chem Soc J 37:855-92 Ap 14

Substitution in the benzene nucleus. A. E. Hollomon. Am Chem Soc J 36:2496-54 D '14

Benzene, Substituted for

Benzoic substitutes for safety lamps. Chemistry 36:265 J1 '15

- Benzidine hydrochloride**
Determination of sulfates in water by benzidine hydrochloride. F. W. Jbruckmiller. *J Ind & Eng Chem* 7:600-2 *Jl* '15
- Benzine**. See **Benzene**
- Benzoic acid**
Combustion calorimetry and the heats of combustion of cane sugar, benzoic acid, and naphthalene. H. C. Dickinson. *bibliog U S Bur Stand Bul* 11:189-257 *Mr* 1 '15
Mutarification of benzoic acid by mercaptans. L. S. Pratt and R. R. Iteid. *diag Am Chem Soc J* 37:1934-48 *Ag* '15
Neutral ammonium salts of some substituted benzoic acids. L. McMaster and I. H. Godlove. *Am Chem Soc J* 37:2181-8 *S* '15
- Benzol**
Analysis and valuation of motor fuels—14 methods for examining them; from German data. *Automobile* 33:203-5, 247-9+ *Jl* 29-*Ag* 5 '15
Benzol as a fuel. *J Ind & Eng Chem* 7:73-4 *Ja* '15
Benzol for gasoline as motor fuel. *Sci Am* 113:354 *O* 23 '15
Combustion of benzole in internal combustion engines. E. Terres. *Am Soc M E J* 37:46-8 *Ja* '15
Determination of benzol in gas mixtures. G. A. Burrell and L. W. Robertson. *diag J Ind & Eng Chem* 7:689-70 *Ag* '15; Same. *Am Gas Light* 3 103:132-3 *Ag* 30 '15
Determining the benzol in gas. A. Krüger. *diag Am Gas Light J* 103:289-300 *My* 10 '15
Dr. Rittman's gasoline process. *Sci Am* 112:248 *Mr* 13 '15
Driving tests with benzol and benzol-alcohol mixtures by Baron Von Loew. *Automobile* 33:709-11 *O* 14 '15
Rittman process of cracking. C. H. Claudy. *II Sci Am* 112:267 *Mr* 20 '15
Steel works benzol plants. *Iron Age* 95:703 *Mr* 25 '15
- Benzophenone chloride**
Triphenylmethyl; preparation of *p*-hydroxytriphenylmethyl and attempts to isolate the corresponding triarylmethyl. M. Gomberg and R. L. Jickling. *Am Chem Soc J* 37:2675-91 *N* '15
- Benzoyl chloride**
Benzoylations in ether solution. W. M. Dehn and A. A. Ball. *Am Chem Soc J* 36:2091-2101 *O* '14
- Benzoylparatoxyhydrazine**
Constitution of the hydroxyazo compounds; the action of unsymmetrical benzoylparatoxyhydrazine upon benzocoumarone and its homologs. W. McPherson and G. W. Stratton. *Am Chem Soc J* 37:906-15 *Ap* '15
- Benzylidene anthranilic acids**
Action of acetic anhydride on some benzylidene anthranilic acids. J. B. McColey and C. E. Poe. *Am Chem Soc J* 37:582-6 *Mr* '15
- Berea college, Berea, Ky.**
Industrial education in the South. *II Bldg Age* 37:61-2 *O* '15
- Berberi**
Berberi-preventing vitamins. W. P. Chaudhurn. *Sci Am* 113:379 *O* 30 '15
- Bermuda**
Bermuda's little trees. W. R. Brown. *II Am For* 21:186-97 *Mr* '15
- Bertillon system**
Passing of the Bertillon system of identification. R. B. Foadlek. *Sci Am* 8 80:330-1 *N* 20 '15
- Bessel functions**
Experimental researches on skin affect in conductors. A. B. Kennelly, E. A. Laws and P. H. Pierce. *bibliog II diag Am Inst* 19 19 *Pro* 34:1749-1814 *Ag* '15
- Bessemer process**
Heat energy from the Bessemer process. G. Butz. *Iron Age* 95:618-19 *Mr* 18 '15
See also **Steel metallurgy**
- Bevels**
Table of bevels. *Eng N* 73:639 *Ap* 1 '15
- Bible. Old Testament**
Medicine of the Old Testament. S. B. Hakely. *Sci Am* 8 80:70-1, 80 *Jl* 31-*Ag* 7 '15
- Bicycles**
See also **Motor cycles**
- Billerica, Massachusetts**
Billerica garden suburb. A. C. Conney. *II plan Eng N* 73:815 *Ap* 29 '15
- Bills and notes**
Notes receivable. S. Walton. *J Account* 19:313-17 *Ap* '15
- Bills of exchange, Domestic**. See **Trade acceptances**
- Binding**. See **Bookbinding**
- Bins, Steel**
Cleveland adopts steel coal and sand storage bins. *II diag Mee Ry J* 46:1001-2 *N* 13 '15
- Biochemistry**. See **Biological chemistry**
- Biological chemistry**
Biochemical systems and their function in the development of the organism. W. Bechtereux. *Sci Am* 8 79:131 *E* 27 '15
See also **Barford's test**
- Biology**
See also **Bacteriology**; **Cells**; **Enzymes**; **Parthenogenesis**; **Plankton**; **Variation (biology)**; **Zoology**
- Biplanes**. See **Acroplanes**
- Birch**
Use of native woods for interior finish. C. M. Price. *II Brkch* 24:239-40 *O* '15
- Bird houses**
Building bird houses. N. Dearborn. *diag Am For* 21:690-9 *My* '15
Care of bird houses. N. Dearborn. *diag Am For* 21:582-5 *Ap* '15
- Birds**
Bird enemies of forest insects. W. J. McAtee. *II Am For* 21:581-91 *Jo* '15
Birds and the forests. A. A. Allen. *Am For* 21:845-6 *Ag* '15
First national bird census. *Sci Am* 112:243 *Mr* 13 '15
Our vanishing shore birds. A. A. Allen. *II Am For* 21:911-12 *S* '15
Value of birds to man. *Sci Am* 8 79:356 *Jo* 5 '15
See also **Water birds**
- Migration**
Departure of the birds. A. A. Allen. *II Am For* 21:977-80 *O* '15
Miracle of bird migration. W. W. Cooke. *Sci Am* 112:476-7 *My* 22 '15
- Birds, Fossil**
New light on the great toothed divers of America. R. W. Shufeldt. *II Sci Am* 8 79:52-3 *Ja* 23 '15
- Birds, Protection of**
Brookline protects birds. C. B. Floyd. *II Am For* 21:792-5 *Jl* '15
Conserving the waterfowl. A. A. Allen. *Am For* 21:1047-8 *N* '15
In defense of our feathered cosmopolites. *Sci Am* 113:316 *O* 9 '15
- Birkinbine, John, 1841-1915**
Sketch. R. W. Raymond. *por Am Inst Min* 19 *Bul* 103:1437-42 *Jl* '15
- Birmingham, Alabama**
- Railroads**
New terminal for the Southern at Birmingham. *II diag Ry Age* 59:743-5 *O* 22 '15
- Bituminous materials**
Asphaltic materials for road construction. A. A. Berkowitz. *Eng & Contr* 42:161-3 *Ag* 12 '14; Same. *Munie Eng* 47:464-7 *D* '14
Colloids in relation to manipulation of structural materials. C. Richardson. *Munie Eng* 48:360-2 *Jo* '15
Determining the melting points of asphalts. J. C. Miller and P. P. Sharples. *Eng & Contr* 43:87-8 *Ja* 27 '15
Payments with pitch filler. *II Munie J* 38:100-2 *E* 4 '15
Proposed standard terms for bituminous road materials. *Eng & Contr* 42:234-5 *M* 2 '14
Purchase of asphalt and asphaltic cement on the bituminous basis. W. J. Brandhurst. *Eng & Contr* 43:85-6 *Ja* 27 '15

Bituminous materials—Continued

Specification and selection of asphaltic materials for street pavement, R. C. N. McLaughlin, *Sch Mines Q* 36:30-9 N '14

See also Asphalt; Pavements, Bituminous; Roads, Bituminous; Tar

Testing

Cementing value of bituminous binders, L. Kirschbraun, *Il diggs J Ind & Eng Chem* 4: 976-85 D '14; Same, *Eng & Contr* 43:39-43 Ju '13 '15

Bituminous pavements. See Pavements, Bituminous

Bituminous roads. See Roads, Bituminous

Bituminous shales. See Oil shales

Black walnut

Use of nutive woods for interior finish, C. M. Price, *Il Brickb* 24:240-1 O '15

Blacksmith shops

New Rossmore & Lake Erie blacksmith shop, *Il plan Ry Age* 58:177-8 Mr '15

Blacksmithing

International railroad master blacksmiths' association 23d annual convention, *Ry Age* 59:387-9 Apr '15

International railroad master blacksmiths' convention, *Ry Age* (Mech ed) 83:171-81 S '15

See also Forging; Welding

Blankets

Origin of blankets, *Textile World* 35:52-3 Je '15

Blast furnace gas

Blast-furnace gas for coke ovens, O. Shimmerbach, *Ind Eng* 16:79-80 Jan '15; Same, *Iron Age* 55:242-3 Jan 28 '15; Same, *Am Gas Light J* 102:135-1 Mr '15

Burning blast furnace gas; Heat-blow House, senior combustion arrangement, *diag.*, *Iron Age* 55:612-13 Mr '15

Carbonization of iron at low temperatures in blast furnace gases; abstracts, with discussion, T. H. Byrom, *Engineer* 129:355 O S '15; *Iron Age* 56:1176-8 N 18 '15

Gas from blast furnaces, its cleaning and utilization, J. R. Johnson, Jr, *diag.*, *Met & Chem Eng* 12:585-92, 760-9 N D '14; Same, *Sat Am S* 29:23-5, 116-17, 126-7, 132-3 F 6 '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Large blast furnace gas engines, H. Hubert, *Il diggs Engineer* 129:511-11, 511-2 May 21 '15

Utilization of blast furnace gas, A. N. Tappan, *Iron Tr R* 57:916-8, 923-7, 1049-5 N 11 '15 '16; Abstract, *Iron Tr R* 57:853-6 O 23 '15; Abstract, with discussion, *Iron Age* 56:958-60 O 28 '15

Utilization of waste heat for the generation of electrical energy, H. Holman, *Ind E E J* 53:246-6 Je '15

Blast furnace stoves

Brown hot blast stove, *diag.*, *Iron Tr R* 57:179-81 Je '15

High blast heats in American practice, W. Mathias, *Am Ind Min* 11: 601-6 Mr '15; Same cond., *Iron Age* 56:15-6 F 6 '15; Same cond., *Iron Tr R* 56:36-6, 365-6 F 15 '15; Abstract, *Met & Chem Eng* 13:177-8 Mr '15; Discussion, *Am Ind Min* 11: 601-6 F 15 '15

Hot-blast stove gas burners, *Il diggs*, *Iron Age* 56:556-7 Apr '15

Hot stove with 3-in. checker walls, *diag.*, *Iron Age* 56:133-31 Je '15

New process for accelerated heating, A. Spangmuel, *Iron Age* 54:1318-19 D 3 '14

New process for heating blast-furnace stoves, *Eng & Min J* 99:210 Jan 30 '15

New type of brick for hot blast stoves, *diag.*, *Iron Age* 56:312-13 Apr '15

Progress in blast furnace practice; results of an efficiency test on hot blast stoves, A. R. Muesom, *diag.*, *Iron Tr R* 56:1329-5 Fe 21 '15; Abstract, *Iron Age* 56:626-8 Fe 15 '15

Blast furnaces

Blast-furnace plant auxiliaries and general arrangement, J. R. Johnson, Jr, *diag.*, *Met & Chem Eng* 13:373-8, 429-39, 495-9 Ju-Aug '15

Blast-furnace practice, *Iron Age* 56:106-7 F 13 '15

Blast furnace scaffolds, *Il Iron Age* 54:1116-17 24 '14

Blast furnace shop handling system, F. L. Prentiss, *Il Iron Age* 56:1396-8 Ju '15

Blast furnace spout at Great Falls, Mont., *diag.*, *Eng & Min J* 99:111 Apr '15

Blast furnace tapping machine, *Il Iron Tr R* 57:321-3 Apr 12 '15

Blast furnace vs. reverberatory, *Eng & Min J* 99:832-3 May 8 '15

Blast furnace work, *Iron Age* 56:102-3 Ju 1 '15

Bosh fuel domes, F. L. Grammer, *diag.*, *Eng & Min J* 98:1015-6 F 12 '14

Bosh of hot blast furnaces, L. V. Anderson, *Eng & Min J* 98:1015-6 F 12 '14

Braquettes in blast furnace practice, M. Zillgen, *Iron Age* 54:1331-2 D 14 '14

Chargings from blast furnaces, *Iron Age* 56:664-5 S 4 '15

Chemical principles of the blast furnace, J. R. Johnson, Jr, *Met & Chem Eng* 13:373-8, 429-39, 495-9 Ju-Aug '15

Efficiency of the blast furnace operation, H. P. Thurnham, *Met & Chem Eng* 13:373-8, 429-39, 495-9 Ju-Aug '15

Furnace improvements at plant of Jackson Iron & Steel Co., Jackson, O., *diag.*, *Iron Tr R* 56:311-2 Apr '15

Furnace operation at Mt. Leona, *Eng & Min J* 99:1031-2 Ju 1 '15

Gas blowing capacity of the hot-blast plant of the Pennsylvania Steel Company, *Il Met & Chem Eng* 13:373-8, 429-39, 495-9 Ju-Aug '15

Gas blowing capacity of the hot-blast plant of the Pennsylvania Steel Company, *Il Met & Chem Eng* 13:373-8, 429-39, 495-9 Ju-Aug '15

Gas blowing capacity of the hot-blast plant of the Pennsylvania Steel Company, *Il Met & Chem Eng* 13:373-8, 429-39, 495-9 Ju-Aug '15

Handling iron and coke at the blast furnace, J. E. Johnson, Jr, *diag.*, *Met & Chem Eng* 13:373-8, 429-39, 495-9 Ju-Aug '15

Heat balance of the blast furnace, J. Connell, *Met & Chem Eng* 13:373-8, 429-39, 495-9 Ju-Aug '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Hot-blast stove gas burners, *Il diag.*, *Iron Age* 56:556-7 Apr '15

Blast furnaces—*Continued*

Turbo blowers for blast-furnace blowing. R. H. Rice. II *diag* Am Inst Min 13 Bul 89:721-43 My '14; Abstract. Am Soc M 13 J 36:0161-2 JI '14; Discussion. Am Inst Min 13 Bul 100:794-809 Ap '15

Wet ores in charcoal blast furnaces. R. H. Lee. Met & Chem Eng 13:882 D 1 '15

See also Blast furnace gas; Blast furnace stoves; Cast iron; Coke ovens; Cupola furnaces; Iron metallurgy; Slag; Slag settlers

Charging

Blast-furnace charging apparatus. F. C. Roberts. *diag* Iron Age 95:234-5 Ja 28 '15

Blast-furnace skips and transfer cars: an English installation of the eighteenth century. F. C. Roberts. II *diag* Iron Age 95:192-3 Ja 21 '15

Charge car at Midvale, Utah. II Eng & Min J 100:519-20 S 25 '15

Filling the blast furnace. J. M. Johnson, Jr. II *diag* Met & Chem Eng 13:101-73, 227-33 M-Ap '15

Telpher furnace charging. N. Kapp. *diag* Iron Age 94:1388-9 D 17 '14

Blast lamps

Blast lamp for natural gas. H. C. Chapin. II J Ind & Eng Chem 7:46-7 Ja '15

Blast stoves. See Blast furnace stoves**Blasting**

Blitz digging by blasting. F. W. Wilson. II Eng & Contr 41:150 Ag 25 '15

Electric shot firing in Kansas. C. L. Carpenter. *diag* Colliery 35:536-8 Ja '15

Electric shot firing in Oklahoma. Colliery 35:408-9 Mr '15

Five-hole cut. Eng & Min J 99:1083 Jo 19 '15

Five-hole cut. H. A. Morrison. *diag* Eng & Min J 99:956 My 29 '15

Hints on loading drill holes. Eng & Min J 100:761 N 6 '15

How electric blasting saves. Eng & Min J 100:802 N 13 '15

Largest blast on record. II map Eng N 73:1020-7 My 27 '15

Mother Lode blast. F. S. Norcross, Jr. II Eng & Min J 99:931-5 My 29 '15; Abstract. Eng M 49:920-3 S 8 '15

New electric blasting caps for wet work. Eng & Min J 100:311 Ag 21 '15

New safety detonating fuse: Cordouan detonant. II Souder. II *diag* Am Inst Min 13 Bul 91:2517-66 O '14; Abstract. Eng M 48:416-18 D '14; Abstract. Eng & Contr 42:462-3 N 11 '14; Discussion. Am Inst Min 13 Bul 100:895-902 Ap '15

Pointers to avoid trouble with blasting fuse. Eng Rec 72:178 Ag 7 '15

Primer on explosives for metal miners and quarrymen. C. E. Munroe and C. Hall. *diag* Jls U S Bur Mines Bul 80:1-117 '15

Rock work in coal mines. II *diag* Colliery 35:237-40 D '14

Safety methods used in handling explosives. II Eng N 73:1080-1 Jo 3 '15

Shot firing in coal mines by electric circuit from the surface. C. S. Rice and H. H. Clark. Am Inst Min 13 Bul 94:2563 71 O '14; Discussion. 100:885-91 Ap '15

Use and abuse of fuse. Eng & Min J 100:882-3 N 27 '15

Blasting, Substitutes for. See Hydraulic mining cartridge**Bleaching**

Bleaching and finishing crepes. Textile World 49:121-2 Ap '15

Bleaching artificial silk. Textile World 48:506 F '15

Bleaching knit goods. Textile World 48:409 Ja '15

Bleaching of cotton and linen mixed goods. Textile World 49:551-2 Ag '15

Blue spots on knit goods. Textile World 48:507 F '15

Improved bleaching process. Textile World 49:682-4 S '15

Improved high pressure boiling digger. II *diag* Textile World 48:427-8 Ja '15

Improved process of bleaching. Textile World 50:229-30 N '15

Kanbara earth and its bleaching action on oils. S. Ueno. *diag* J Ind & Eng Chem 7:896-900 JI '15

Kuehn bleaching apparatus for cotton. *diag* Textile World 48:623-4 Mr '15

Thies system of bleaching piece goods. *diag* Textile World 48:620-1 Mr '15

See also Cleaning; Dyes and dyeing

Blind

See also Optophone; Phonopticon

Printing and writing systems

Printing for the blind. Sci Am S 79:247 Ap 17 '15

Block signals. See Railroads—Signals**Blockade**

Blockade by submarine. Sci Am 112:376 Ap 24 '15

Blood

Ninhydrin reaction in relation to the age and habits of individuals. J. Takamine, Jr. Am Chem Soc J 37:916-9 Ap '15

Analysis

Nephelometric estimation of purine bases, including uric acid, in urine and blood. S. S. Graves and P. A. Kohler. Am Chem Soc J 37:2430-47 O '15

Blooming mills. See Rolling mills**Bloomington, Indiana****Sewerage**

Sewage disposal at Bloomington; abstract. U. S. Hanna. Munic J 37:883-4 D 17 '14

Blotters

Printers' blotters. Inland Pkr 55:784a-784h S '15

Blower systems

Blower systems for heating and ventilating and stock and refuse conveying systems: committee report. A. M. Feldman. *diag* Am Soc Heat & V 12 20:412-20 '14

Four-prong fork for pipe of blower system. *diag* Metal Work 83:811-12-4 Jo 4 '15

Removing acid fumes by blower system method. W. B. Piper. *diag* Metal Work 84:682-3 N 26 '15

Theory and practice in warm-air heating. *diag* Metal Work 84:451-3 O 8 '15

Blowers

Advantages and disadvantages of various types of blowers for cupola work. Am Soc M 13 J 37:227-8 Ap '15

Shades of two blowers break. W. A. Dunkley. II Power 42:694 N 16 '15

Choosing air compressors for activated-sludge tanks. C. H. Norrell. Eng N 74:901-6 N 4 '15

Efficiency of the blast furnace operation. II F. Hurman. Met & Chem Eng 13:624-9 S 15 '15

Forced draft. Colliery 35:502-3, 550-60 Ap-May '15

Gas blowing engines at the Steelton plant of the Pennsylvania steel company. II Met & Chem Eng 13:516-19 Ag '15

Gas blowing engines for the Pennsylvania steel co. II Iron Age 96:12-11 JI 1 '15

Gas blowing engines for the Pennsylvania steel co. II Iron Tr R 57:33-5-4 JI 1 '15

High-speed blowers and compressors. II Iron Age 96:136-7 JI 15 '15

Methods and facilities for specifying and testing blowers also measuring air and steam supply to the water gas generators. J. M. Spitznagel. Am Gas Inst Pro 9:pt 1, 615-66; Discussion. 9:pt 1, 666-77 '14

Modern gas-power blower stations. A. West. II *diag* Am Inst Min 13 Bul 102:1205-13 Jo '15; Abstract. Am Soc M 13 J 37:113 JI '15

New Schlotter blower. A. Grudenwitz. II Power 41:281-2 F 23 '15

Notes on fans. A. A. Potter and S. L. Simmering. Power 41:816 Jo 15 '15

Remote control of gas blower. W. A. Dunkley. *diag* Power 42:568 O 19 '15

Soot blowers as adapted for use on economizers. *diag* Power 42:194-5 Ag 10 '15

Tests of hand and mechanical soot blowers. A. W. Conklin. *diag* Power 42:48-50 JI 13 '15

Turbo-blower for the blast furnace; abstract. F. G. Cutler. Ind Eng 14:439-40 N '14

Turbo-blower governing device; abstract. A. Stodola. *diag* Am Soc M 13 J 37:181-2 Mr '15

Boiler plants—Continued

- Boiler plant of the Bessemer coal and coke company; using as fuel a mixture of coal and slate. W. O. Rogers. *Il diag* plan Power 41:798-801 Jo 15 '15
- Boiler plant of Union brewery, St. Louis. T. Wilson. *Il plans* Power 41:662-5 My 18 '15
- Boiler-room practices in Europe and this country; abstract with discussion. W. A. Black. *diag* Elec W 65:481-2 Jo 20 '15
- Cost of steam. C. W. Howard. Power 41:273 Jo 23 '15
- Cost of steam. H. L. Strong. Power 41:133 Ja 20 '15
- Economical boiler-house design. R. D. DeWolf. *Eng* M 49:837-42 S '15
- Experience in an isolated plant. E. T. Binns. Power 41:680 My 18 '15
- Gas burners in 2750-hp. office-building boiler plant. *Il diag* Power 42:79-80 Ji 20 '15
- How to increase steam production. H. R. Callaway. *Eng* M 49:843-9 S '15
- Increased capacity of the plant. B. M. Babcock. Power 41:685-6 My 18 '15
- Keeping track of plant operation at the Cleveland municipal plant. A. D. Williams. *Il* Power 41:293-4 Mr 2 '15
- Lights in the boiler room. J. C. Hawkins. *plan* Power 42:591 O 26 '15
- Reconstructing existing plants. O. Monnett. *diag* Power 40:920-3 D 29 '14
- Steam costs in 6800-hp. boiler plant. F. G. Philo. Power 41:368-9 Mr 16 '15
- Steam-generating methods. Cleveland municipal plant. A. D. Williams. *Il* Power 41:631-3 My 11 '15
- Warren state hospital power plant. W. O. Rogers. *Il diag* plan Power 42:364-5, 408-12 S 14-21 '15
- Washington avenue power plant, Scranton, Penn. W. O. Rogers. *Il diag* Power 41:868-76 Jo 29 '15

See also **Boilers**; **Steam plants**

Boiler plates

- Brittleness of wrought iron as a consequence of heating compressed material; abstract. R. Baumann. *diag* Am Soc M 10 J 37:605-6 O '15
- Convenient form of plate caliper. Locomotive 30:169-70 Ap '15
- Tests on the diagonal strength of boiler plate. J. W. R. Macdonald. Power 41:779-80 Jo 8 '15
- Thick boiler plates. S. F. Jeter. *diag* Power 40:884-5 D 22 '14
- Thick boiler plates. T. Grimes. Power 40:133 Ja 26 '15
- Tom Hunter, holding engineer. W. O. Rogers. *Il diag* Power 42:678-80 N 16 '15

Boiler scale

- Boiler corrosion and scale to be ended by the use of electricity. *Sci Am* S 80:272 O 23 '15
- Mechanical scale preventer. *Il* Power 40:835 D 15 '14
- Prevention of boiler scale and corrosion. A. H. Babcock. *Elec* W 65:114 Ja 9 '15

Boiler setting. See Boilers—Setting**Boiler tubes**

- Boiler tubes have tendency to spring upward. J. C. Hawkins. *diag* Power 42:452 S 28 '15
- Reformation of boiler tubes. T. R. Turn. *diag* Power 42:556-7 N 9 '15
- Electric process for safe-ending tubes. L. R. Pomerooy. *diag* *Ity Ago* (Mech ed) 89:469-70 S '15
- Flue welding. E. J. Hinkins. *Ity Ago* (Mech ed) 89:471 S '15
- Flue system of boiler tube replacement; abstract. *diag* Am Soc M 10 J 37:480-1 Ag '15
- Repairing locomotive boiler tubes. N. H. Ashmuth. *Il plans* *Ity Ago* (Mech ed) 89:385-6 Jo '15
- Retubing tubular and water-tube boilers. J. C. Hawkins. *diag* Power 41:330-2 Mr 9 '15
- Specifications for lap-welded and seamless boiler tubes. *Iron Ago* 84:1418-19 D 17 '14
- Using old boiler tubes as pipe. J. P. Nolan. *Il diag* *Ity Ago* (Mech ed) 89:192 Ag '15
- Visits of inspector Brown. J. M. Torrance. Power 42:648-9 N 9 '15

Specifications

- Boiler tube specifications. *diag* Iron Tr R 57:47-8 Ji 1 '15

Boilers

- American society of mechanical engineers: discussion of the boiler report. *Am Soc M 10 J* 37:41-3 Ja '15; *Elec* W 65:114-15 Ja 9 '15
- Boiler capacity for steam curing. *Concrete Cem* 7:185-6 N '15
- Boiler-control boards at Delray. N. G. Reinbecker. *Il* Power 42:435-6 S 28 '15
- Boiler practice of 1915. A. D. Pratt. *diag* *Elec* W 66:690-1 S 25 '15
- Boilers for isolated plants. C. L. Hubbard. Power 41:233-4 Jo 16 '15
- Cleaning fires under boilers. *diag* *Elec* W 65:731-5 Mr 20 '15
- Corrugated furnaces for vertical fire-tube boilers. F. W. Dean. *diag* Power 42:103 Ji 20 '15
- Defender boiler-room appliances. *Il* Power 41:609 My 4 '15
- Draft in furnaces and flues. T. G. Bailey. *diag* Power 42:638-42 N 9 '15
- Economizing zinc. H. de B. Parsons. *Sci Am* S 80:224 O 2 '15
- Eddy rings in fire-tube boilers. *Am Soc M 10 J* 37:117 Jo '15
- Feeding graphite to boilers. C. N. Wiley. *diag* Power 41:616-17 My 4 '15
- Gas fired boilers. Herr Rirkholz. *Am Gas Light* J 102:99-101 Jo 15 '15
- German progress in steam boiler firing; abstract. Prudel. *Am Soc M 10 J* 37:235-6 Ap '15
- Hand firing soft coal under power-plant boilers. H. Kresling. *diag* *U S Bur Mines Tech* Pa 80:1-77 '15; Abstract. *Am Gas Light* J 102:139-40 Mr 1 '15
- Increasing boiler capacity. J. Harrington. *diag* Power 41:739-40 Jo 1 '15
- Influence of altitude on boilers. J. D. Skinner. Power 42:248-9 Ag 17 '15
- Lugging furnace walls to stop heat loss. *Elec* W 65:1049-50 Ap 24 '15
- Multiple-unit boiler control. E. R. Fisher. *diag* Power 42:378-80 S 14 '15
- Newport boilers. *Il Metal Work* 84:257 Ag 20 '15
- Nine-foot return-tubular boiler. *Il* Power 41:431-2 Mr 30 '15
- Performance of a cinder catcher. M. Van Valkenburgh and M. H. Isenberg. *plan* Power 40:918-19 D 20 '14
- Poor circulation in boilers. *diag* *Int Marine Eng* 20:818-19 Ji '15
- Problems in burning powdered coal. A. S. Mann. *Il diag* *Gen Elec* 18:959-65 O '15
- Pulverized coal for steam making. F. R. Low. *diag* Power 40:356-8 Ji 7 '14; Same. *Am Soc M 10 J* 30:346-52 O '14; Same cond. *Ind Eng* 13:333-6 Ag '14; Abstract. *Colliery* 35:530-2 My '15
- Recording power plant operations. J. C. Smallwood. *Il diag* *Eng* M 50:33-45 O '15
- Relation between quality of steam and load on the boiler in the case of a Cornish boiler; abstract. *Am Soc M 10 J* 37:185 Mr '15
- Results of changes in boiler furnace. M. B. Smith. *diag* Power 41:92-3 Ja 19 '15
- Return-tubular boiler furnace development. O. Monnett. *diag* Power 40:93-4 Ji 21 '14; Same. *Sci Am* S 74:394-5 D 15 '14
- Reverberatory waste-heat boilers. L. Duncan. *Il diag* *Eng* & *Mtn* J 99:152-3 Ja 16 '15
- Similar features of boiler and refrigeration systems. T. C. Thurston. Power 42:437-8 S 28 '15
- Steam-boiler construction and inspection. H. A. Baumhart. Power 39:900-1 Jo 23 '14; Abstract. *Eng* & *Contr* 42:178-9 Ag 19 '11
- Steam boiler economy in factories. W. Kent. *Ind Eng* 15:22 Ja '15
- Steam boiler of 1915. A. D. Pratt. *diag* Power 42:661-7 N 9 '15
- Study of draft in boilers. C. F. Hirschfeld. *diag* Power 42:196-7 Ag 10 '15
- Unaccounted-for loss. S. U. Tushin. *Elec* W 65:1306-7 My 22 '15
- Use of corrugated furnaces for vertical fire tube boilers; with discussion. F. W. Dean. *diag* *Am Soc M 10 J* 37:445-6 Ag '15
- Valve requirements of boilers. T. W. Keynolds. *plans* *Elec* W 66:976-8 O 30 '15

Boilers—Continued

- Washing and laying up boilers, J. E. Noble, Power 42:451-2 S 28 '15
 Washing and laying up boilers for the summer, J. C. Hawkins, Power 42:277 Ag 24 '15
 Waste-heat boilers, O. Monnett, diggs Power 41:106-7 F 9 '15; Same, Eng & Min J 99:368-9 F 22 '15
 Waste-heat boilers at Chrome, N. J., C. L. Brower, II diggs Eng & Min J 99:892-5 My 22 '15
 Waste-heat boilers in steel plants; abstracts, C. J. Bacon, diggs Iron Age 95:1549-52 Je 17 '15; Iron Tr R 56:1123-4 Je 3 '15; Power 42:27-8 J 16 '15
 Why's of boiler draft, C. F. Hirschfeld, diggs Power 41:675-9 My 18 '15
See also Blowoff tanks; Boiler cleaning; Boiler explosions; Boiler inspection; Boiler plants; Feed water; Firing; Fuel economy; Furnaces; Grates; Locomotive boilers; Safety valves; Steam engines; Stokers, Mechanical; Water gages

Corrosion

- Boiler corrosion and scale to be ended by the use of electricity, Sci Am S 80:272 O 23 '15
 Economy of coal and boiler corrosion, G. J. Meyers, Int Marine Eng 20:115 6 Ap '15
 Interesting case of boiler corrosion, F. Killian, diggs Int Marine Eng 19:561-5 J 1 '14
 Notes on boiler operation, C. E. Stromeyer, Power 42:628-9 N 2 '15
 Preventing corrosion from electrolytic action, Power 41:740 Je 1 '15
 Unexploded boiler, A. Suzara, II Int Marine Eng 20:273-4 Je '15

Electric heating

- High-voltage alternating-current boilers, II Elec W 65:430-1 F 13 '15

Feeding

Sea Feed water

Heads

Sea Boiler heads

Joints

- Ratio of circumferential to longitudinal stresses in boiler joints, J. K. Lamberhurst, Power 41:611-12 My 4 '15
 Strength of diagonal joints, J. E. Ternum, diggs Power 41:296 7 Mr 2 '15

Laws and regulations

- A. S. M. E. boiler code, Locomotive 39: 175-7 Ap '15
 A. S. M. E. boiler code approved by council, Power 41:268-70 F 23 '15
 A. S. M. E. code, Iron Age 96:28 J 1 '15
 Boiler code of the A. S. M. E., R. C. Carpenter, Sibley J 29:178 83 Mr '15
 Boiler industry needs uniformity, Iron Tr R 56:1301 Je 24 '15
 Digest of boiler laws of states of the United States, Power 42:sup J 1 27 '15
 Lack of synchronism in check-valve action, S. F. Jeter, diggs Power 41:48 Ja 12 '15
 Massachusetts board of boiler rule hearing, Power 42:702 N 16 '15
 Model boiler and engineers' license law references, Power 42:166-8 Ag 3 '15
 Model boiler-inspection and engineers' license law, Power 42:82-3 J 20 '15
 Progress on the report of the boiler committee of the Am. Soc. M. E. J. Am Soc M E J 37:xi-xiii F '15
 Promulgation of the boiler code by the American uniform boiler law society, Am Soc M E J 37:xi-xx F '15
 Safety first in the power plant, Power 40:813-14 D 8 '14
 Standard boiler code approved, Elec Ry J 45: 377-8 F 20 '15
 Steam-boiler law proposed by the Mechanical engineers' committee, Eng N 72:1178-9 D 10 '14

Rating

- Archute boiler horsepower, Power 41:167-8 F 2 '15
 Heating surface a measure of steaming ability, Elec W 65:530 Ap 10 '15

- Limiting factors in forcing boilers above rating, T. Mayne, diggs Power 42:662 12 N 2 '15
 Rational units for the boiler room, H. C. Stodd, Elec Ry J 45:198 Ag 6 '15
 Table of boiler heating surface and horsepower, Locomotive 30:118 20 O '14

Repair

- How a water-tube boiler was repaired by an electric weld, A. C. Laver, Elec W 66:1 6 S 8 N 2 '15
 Requiring flame bridges, L. B. & W. boiler, R. A. Brownell, diggs Power 42:26 J 6 '15
 Repairs to a Babcock and Wilcox boiler, F. H. Sadler, diggs Int Marine Eng 20:379 20 J 1 '15
 Retubing tubular and water-tube boiler, C. Hawkins, diggs Power 41:236 6 Mr 2 '15
 Vitals of inspector Brown J. E. Brown diggs Power 42:110 1, 280 2 S 23, O 26 '15

Safety devices and measures

- Calculation of dimensions of safety valves, with high lift, ab 110-1, 110-2, App Soc M E J 37:181 Ag '15
 In case of emergency, water cooled, E. H. Peabody, II Power 42:662 6 N 2 '15
 Investigation of trouble in boiler plant, G. K. Burgess and P. D. Moore, J Metals 11:104 Tech 19 33 13 '15; Same cont., J Metals 11:104 & Eng Chem 52:1 9 13 '15; Am Chem Soc 41:1063 9 J 1 '15; App Soc M E J 37:181 6 N 2 '15; Power 42:33 1 N 2 '15
 Investigation of trouble in boiler plant, G. K. Burgess and P. D. Moore, J Metals 11:104 13 '15; App Soc M E J 37:181 6 N 2 '15; Same Power 42:33 1 Ag 10 '15; Metals 11:104 & Eng Chem 52:1 9 13 '15
 Note on boiler operation, C. E. Stromeyer, Power 42:628-9 N 2 '15
 Plan for automatic stop valve, Power 42:628-9 J 13 '15
 Scalding low water, Chem & Ind 41: 604 16 19 '15
 Sublim cooling of boiler in case of low water, R. C. Lister, diggs Power 41:66 6 N 16 '15

Setting

- Electric boiler setting, Elec W 65:430-1 F 13 '15
 Electric boiler setting, Elec W 65:430-1 F 13 '15
 Hanger boiler setting, General Electric Co, Locomotive 39:175-7 Ap '15
 Hoisting for the boiler setting, J. E. Monnett, Power 42:584 14 '15
 Inspection of way of setting boiler, Locomotive 39:175-7 Ap '15
 New setting for Worthington boiler, diggs Power 40:560 1 14 '14
 Reconditioning existing plants, J. E. Monnett, diggs Power 42:584 14 '15
 Reconditioning water-tube boiler, J. E. Monnett, diggs Power 42:584 14 '15
 Setting for horizontal tubular boiler, J. E. Monnett, diggs Power 42:584 14 '15
 Special reconditioning, J. E. Monnett, diggs Power 41:91 19 '14
 Supporting horizontal tubular boiler, J. E. Monnett, diggs Power 42:584 14 '15
 Supporting horizontal tubular boiler, J. E. Monnett, diggs Power 42:584 14 '15

Specifications

- Boiler failure, and what the American society of mechanical engineers is doing to prevent them, R. H. Brown, Am Soc M E J 37:12 11 '15; Same, App Soc M E J 37:12 11 '15
 Boiler steel specifications, Iron Age 96:28 J 1 '15

Testing

- Air excess in boiler furnace practice, J. E. Monnett, Sibley J 29:12 8 14 '15
 Boiler efficiency, R. H. Brown, Am Soc M E J 37:12 11 '15
 Boiler tests at American board of M. E. diggs Power 42:584 14 '15
 Boiler tests at various boards, J. E. Monnett, diggs Power 42:584 14 '15
 Boiler tests at various boards, T. Mayne, diggs Power 42:584 14 '15

Boilers—Testing *(Continued)*

- Boiler tests at various loads. V: J. Azbe. Power 42:421 S 21 '15
- Comparative tests of stoker- and hand-fired boilers. H. S. Kuowilton. II Power 41:300-1 Mr 2 '15
- Power plant of the government printing office. D. H. Tuck. Power 41:578-9 Ap 27 '15
- Power plant testing. W. M. Selvy. diags Inst 10 J 53:110-13; Discussion. 53:118-45 Ja 1 '15
- Practical man's boiler test. Power 41:168 F 2 '15
- Problems of furnace and boiler economy. A. L. Westcott. diag chart Elec W 66:583-8 S 11 '15
- Simplifying reports of boiler tests. W: Kent; H. D. Fisher. Power 40:852-4 D 15 '14
- Study of boiler losses. A. P. Krutz. II diags III (I Eng Exp Sta Bul 78:1-72 '15; Abstract. Am Soc M 10 J 37:491 Ag '15; Excerpts. Power 42:766-9 N 30 '15
- Superheat in vertical fire-tube boilers. S. P. Stewart. Power 42:582-8 O 26 '15
- Test of down-draft sectional boiler. C. A. Fuller. Metal Work 83:282-3 F 10 '15; Same. Dom Eng 71:64-5 Ap 17 '15
- Test of the radial stays between the combustion chamber and the shell of a marine type boiler. diags Locomotive 30:102-10 O '14
- Testing the largest cast-iron boiler in the world. II diags Metal Work 83:388-9 Mr 12 '15
- Tests on a recent type of chain grate stoker and new method of balling Stirling boilers. J: A. Hunter. diags Eng Soc W Pa 31:1-10; Discussion. 31:10-55 F '15; Abstract. Am Soc M 10 J 37:348-51 Jo '15
- Utilization of blast furnace gas. A. N. Diehl. Iron Tr R 57:1040-2 L N 25 '15
- Visits of Inspector Brown. J. B. Terman. Power 42:710-11 N 23 '15
- Warren state hospital power plant. W. O. Rogers. Power 42:411-12 S 21 '15
- Washington avenue power plant, Scranton, Penn. W. O. Rogers. Power 41:872 Je 29 '15
- Wood and coal as fuel for steam boilers. H. B. Reynolds. tables Sibley J 30:14-20 O '15

See also Blue gas

Boilers, Heating

- Boiler ratings and chimney sizes. H: R. Pierce. Dom Eng 69:301-2 D 5 '14
- Briquets as fuel for house heating boilers. J. T. Randall. II Metal Work 83:847-9 Jo 11 '15
- Heating boiler and the master workman. C. S. Dow. Metal Work 83:261-2 F 12 '15
- How boiler and greenhouse parts are molded. E. C. Kreutzberg. II plan Foundry 43:249-57 J 1 '15
- Melting gas boilers for steam and hot water heating. II Dom Eng 73:214 N 13 '15
- New magazine feed boiler. II Heat & Ven 12:46-8 J 1 '15
- Rules for construction of heating boilers. Dom Eng 71:215-17 My 23 '15
- Selection of boilers for heating plants. A. F. Lowndes. Metal Work 83:131-4 Ja 16 '15
- Smoke abatement in house heating boilers. M. A. Rooney. II Heat & Ven 12:17-20 O '15
- Space requirements for boilers of various types in school buildings. T. W. Reynolds. diags Heat & Ven 12:17-19 J 1 '15
- Test of cast-iron downdraft boiler. C. A. Fuller. Dom Eng 71:64-5 Ap 17 '15; Same. Metal Work 83:282-3 F 10 '15
- Testing house heating boilers and checking manufacturers' ratings. I. N. Evans. Heat & Ven 12:50-1 Jo '15
- Testing the largest cast-iron boiler in the world. II diags Metal Work 83:388-9 Mr 12 '15
- Thermal tests of heating boilers at the Institute of thermal research, Buffalo, New York. II Am Soc Heat & V 10 20:220-6 '14
- Uniform method for testing house heating boilers: report of committee. Am Soc Heat & V 10 20:197-203 '14; Same. Metal Work 83:730-40 D 4 '14; Discussion. Am Soc Heat & V 16 20:203-9 '14
- Unsteady water line in heating boilers. Heat & Ven 12:60 Ag '15

Boilers, Hot water

- Hazard of the domestic hot water boiler. II Locomotive 30:142-5 Jo '15

Boilers, Locomotive. See Locomotive boilers**Boilers, Marine**

- Dry back marine boiler, with tubes between furnace and combustion chamber. A. C. Meyers. plan Int Marine Eng 20:511-12 N '15; Abstract. Am Soc M 10 J 37:720 D '15
- Economy. F. H. Sadler. diags Int Marine Eng 20:460-2 O '15
- Experiments in coal consumption. Int Marine Eng 20:41-2 Ja '15
- Faulty designing of marine boilers. C. H. Williamson. Int Marine Eng 20:134-6 Mr '15
- How the efficiency of the Scotch boiler can be improved; abstract. J: Tait. Int Marine Eng 20:89-90 F '15
- Interesting case of boiler corrosion. F. Killan. diag Int Marine Eng 19:564-5 D '14
- Lovickin marine boiler and internal superheater. A. B. Willis. diags Power 42:293-5 Ag 31 '15
- Repairs to a Babcock and Wilcox boiler. F. H. Sadler. diag Int Marine Eng 20:319-20 J 1 '15
- Test of the radial stays between the combustion chamber and the shell of a marine type boiler. diags Locomotive 30:102-10 O '14
- Unexploded boiler. A: Suzara. II Int Marine Eng 20:273-4 Jo '15
- See also* Marine engineering; Marine engines

Boilers, Mercury

- Power from mercury vapor. W. L. R. Emmet. II diags Am Inst E E Pro 33:473-89 Mr '14; Same. Gen Elec L 17:47-51, 99-103 Ja-F '14; Same cond. Power 39:440-50 Mr 31 '14; Same cond. Eng M 40:7235-8 My '14; Same cond. Engineer 117:607-8 Jo 26 '14; Excerpts. Sci Am 112:494-5 My 29 '15

Boilers, Water-tube

- Draft readings on a Stirling boiler. S. H. Viall. diags Power 41:341-5 Ja 12 '15
- How a water-tube boiler was repaired by an electric weld. A. C. Lasher. Elec W 66:1207-8 N 27 '15
- Improved Badenhausen water-tube boiler. diag Power 40:883-4 D 23 '14
- Putting new headers in water-tube boilers. R. T. Gray. Power 41:649-50 My 11 '15
- Reconstructing water-tube boiler settings. O. Monnett. diags Power 41:64-5 Ja 12 '15
- Rectangular pressure vessels. H. J. Vander Zeb. Locomotive 30:164-9 Ap '15
- Repairs to a Babcock and Wilcox boiler. F. H. Sadler. diag Int Marine Eng 20:319-20 J 1 '15
- Test of a 30-h.p. class A Stirling boiler. Power 42:674 N 16 '15
- Tests on a recent type of chain grate stoker and new method of balling Stirling boilers. J: A. Hunter. diags Eng Soc W Pa 31:1-10; Discussion. 31:10-55 F '15; Abstract. Am Soc M 10 J 37:348-51 Jo '15
- Winslow high-pressure boiler. II diags Power 40:824-6 D 8 '14

Boiling points

- Advantageous form of still for the exact measurement of boiling point during fractional distillation. T. W. Richards and J. Barry. II Am Chem Soc J 36:1787-91 Ag '14
- Boiling-point of aqueous solutions of nitric acid at different pressures. H: J. M. Croighan and J. H. Githons. diag J Fr Inst 179: 161-9 F '15

Bolivia

- Financial developments in South American countries. W: H. Lough. U S Bur For & Dom Com 103:15-18 '15

Industries and resources

- Copacabana copper district of Bolivia. F. A. Sundt. Eng & Min J 99:189-90 Ja 23 '15
- Gold mining in Bolivia. F. C. Lincoln. II Eng & Min J 99:351-4 F 20 '15
- Hydro-electric plant at Bolivian tin mine. M. R. Lamb. II Eng & Min J 99:7-9 Ja 2 '15
- Mining in Bolivia. H. L. Venables. Eng & Min J 99:562 Ap 10 '15
- Tin mining in Bolivia. M. C. F. Schuchlein. Eng & Min J 99:143-5 Ja 16 '15
- Tin mining in Bolivia. M. R. Lamb. Eng & Min J 99:505-6 Ap 3 '15
- Tin-ore dressing at Mallaguan, Bolivia. D. Copeland and S. B. Hollister. II Eng & Min J 100:461-4, 513-15, 555-8 S 18-O 2 '15
- Trip through Bolivia. S. C. Bullock. II Eng & Min J 100:421-4 S 11 '15

Bolts and nuts

- Ballou safety bolt nut for rail joints. *Il Ry* Age 59:751-2 O 23 '15
 Bolt and nut making. D. T. Hamilton. *Il Mach* 21:333-5 Ja '15
 Description of nut, bolt and rivet shop of Upson nut co., Cleveland, with details of arrangement and equipment. R. V. Sawhill. *Il plan Iron Tr R* 56:1245-54-1 Je 17 '15
 Foundation bolts for steel chimneys. H. D. Hess. *diag Power* 42:476 O 5 '15; Same. *Eng & Min J* 100:718-19 O 30 '15
 Holding power of a bolt. R. H. Fish. *Il Power* 41:619-20 My 4 '15
 Installing rolling-mill anchor bolts. A. Connely. *diag Iron Age* 96:296-7 Ag 5 '15
 National automatic nut tapper. *Il Mach* 21:515-17 F '15
 National bolt header. *Il Mach* 21:533-4 Je '15
 National continuous motion hammer bolt heading machine. *Il Ry Age (Mech ed)* 89:373-4 Jl '15; *Iron Age* 95:1217 Je 3 '15; *Iron Tr R* 57:265 Ag 5 '15
 New forge shop of Upson nut company, Cleveland. *Il plans Iron Age* 95:1335-43 Je 17 '15
 Proposed standard specification for quenched carbon steel truck bolts. *Ry Age* 59:62-3 Jl 9 '15; Same. *Iron Tr R* 57:45-4 Jl 1 '15
 Reclaiming bolts with battered threads. J. P. Nolan. *Il Ry Age (Mech ed)* 89:39-40 Ja '15
 Removable wedge bolt. H. E. Ophimer. *diag Ry Age (Mech ed)* 89:591 N '15
 Spacing of bolts for wrench clearance. L. J. Schroeder. *Mach* 21:382 Ag '15
 Turning engine bolts. C. L. Diekert. *Il diag Ry Age (Mech ed)* 89:193 1 Ap '15

Bonds

- Amortize and bond discount. O. A. Spden. *J Account* 20:203-15 S '15
 Amortize and bond discount. R. J. Bennett. *J Account* 20:1-20 Jl '15
 Bonus capital stock and bonds. W. P. Hilton. *J Account* 19:425-36 Je '15
 Calculating premiums on bonds. Munde. *J Acc* 420 Ap 1 '15
 Highway bonds: a compilation of data and an analysis of economic features affecting construction and maintenance of highways financed by bond issues, and the theory of highway bond calculations. L. L. Howes and J. W. Glover. *Il maps C S Arth* Ind 136:1-129 '15
 Life of highway improvement should limit term of bonds. N. P. Lewis. *Eng Rec* 72:352 S 18 '15
 Bond bonds should provide for maintenance. J. E. With. *Eng Rec* 72:352 S 18 '15
 Tyranny of the engraver. A. S. Little. *J Account* 20:186-203 S '15

See also Railroads: Securities: Securities

Bonds, Rail. See Rail bonds**Bone-black. See Animal charcoal****Bonington, Richard Parkes, 1861-1928.**

Architectural draughtsman. H. Window. *Il Am Inst Arch J* 3:159-67 Ap '15

Bonsall, Amos

Belles from the second Grinnell expedition. *Nat Am M* 70:300 My 8 '15

Bonus system

Bonus system of comprehensive scope. Worcester, Mass. J. Nelson. *Iron Age* 95:568 Ja 7 '15

Compensation of motor renderers. H. P. McDaniel. *Am Gas Ind* 170 Sept 2, 1933 7 '14; Same. *Am Gas Light J* 101:353 N 23 '14; Same. *Eng & Contr* 42:558-9 D 16 '14; 1934 edition. *Am Gas Ind* 170 Sept 2, 1937-1707 '14

Criminal speeding-up system and bonus facts. W. Crozier. *Am Ind* 15:30-1 Ja '15

Fixing standard time for a bonus system. Z. L. Potter. *Ry Age (Mech ed)* 89:192-3 Ap '15

Management of central stations. W. N. Polukov. *Eng M* 50:371-2 D '15

Manila plant employees receive bonus for increasing coal economy. *Eng W* 68:594 M 25 '15

Modified bonus method of wage payment. G. W. Mixer. *Iron Age* 94:1334-5 D 17 '14

Operating a foundry on a scientific basis. F. A. Parkhurst. *Il Foundry* 43:53-8 F '15

Piece work and bonus systems in the boiler shop. N. H. Ashworth. *Ry Age (Mech ed)* 89:240-2 My '15

Rapid tunnel driving under the bonus system. J. R. McFarland. *Eng N* 71:105-6 Ag 26 '14; Same. *Eng & Min J* 100:517-18 S 25 '15

Task and bonus work applied to excavation. Concrete Cem 5:213 D '14

Taylorism and the bonus system. W. L. Myles. *Mach* 21:101-6 Ja '15

Wage systems of scientific management. *Ind Eng* 15:17-50 F '15

Bookbinding

Scientific management in the office. R. T. Kent. *Iron Age* 95:52-6, 112 1 Ja 7 '15

Cost

Bookbinding labor cost. A. H. Hurdman. *Ind Eng* 15:895-8 S '15

Bookbinding machinery

Foreign trade in bookbinders' machinery. *Engineer* 119:100 1 Ap 23 '14

Bookkeeping

Society bookkeepers: standardized method for recording and checking the account. *Mach Ind* 14:13:233 5 Je '15

See also Accounting, Auditing, Cost accounting

Books and reading

Books of 1914: statistics from *Publications Weekly*. *Sci Am* 112:76, 81 '14

Light reading for public exposure. *Sci Am* 112:262 F 20 '14

See also Bookbinding, Printing

Booth, Franklin

Franklin Booth, author on operation of H. H. Horgan. *Il Indus* 171:151-2, 156, 157 '15

Borax

Blacksmith's use of borax and chromite. *Eng & Min J* 99:1064 D 29 '14

Current data on the borax industry. *Il Indus* 171:151-2, 156, 157 '15

Borers (animals)

Following animals bore their way through rock. *Il Indus* 171:151-2, 156, 157 '15

Drilling of timber by borers. *Il Indus* 171:151-2, 156, 157 '15

Machine used borers. *Il Indus* 171:151-2, 156, 157 '15

Boric acid

Using vacuum pump for the production of electrical energy. *Il Indus* 171:151-2, 156, 157 '15

Boring (earth and rock). *See Boreholes: Boring (earth and rock)*

Boring (metal working, etc.). *See Boreholes: Boring (metal working, etc.)*

Boron

Determination of boron in boron. *Il Indus* 171:151-2, 156, 157 '15

Effect of boron upon the mechanical and other properties of electrolytic boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Isolation of boron. *Il Indus* 171:151-2, 156, 157 '15

Boston, Massachusetts—Bridges—Continued

Design and construction of the Lars Anderson bridge over the Charles river, Cambridge and Boston, Mass. II plans Eng & Contr 42:334-8 O 7 '14

Custom house

Electrical features of Boston custom house tower. II Elec R & W Elec'n 67:336-7 Ag 21 '15

Harbor

Development of port of Boston. map Eng & Contr 43:sup29 Je 16 '15

Lighting

Boston street-lighting contract signed. Elec W 64:1185 D 19 '14

Parks

Aquarium and winter house for birds for the city of Boston. W: D. Austin. II plans Brickb 24:47-50 F '15

Rapid transit

Another Massachusetts fare increase. map Elec Ry J 46:226-8 Ag 7 '15

Massachusetts commission reports to the legislature on transportation in metropolitan Boston. Elec Ry J 45:809-10 Ap 24 '15

Station entrances on Boston subways. W. B. Conant. II Munic Eng 49:13-14 J1 '15

Soil formations

Boston foundations. J. R. Worcester. 26 fold maps Boston Soc C 10 J 1:1-29 Ja '14; Discussion. 1:179-248, 305-417 Ap, 8 '14

Streets

\$3,000,000 needed for improving Boston's streets. Eng Rec 72:503-4 O 23 '15

Water supply

Chelsea creek tunnel for Boston water main. W. B. Conant. II diggs Munic J 38:387-90 Mr 25 '15

Boston & Albany railroad

Boston & Albany railroad improvements at Worcester, Mass. L. C. Morphy. II Boston Soc C 10 J 1:481-98 N '14

Boston & Maine railroad

Abstract of annual report. map Ry Age 59: 679-80 O 15 '15

Federal valuation of the Boston and Maine railroad. F. C. Shepherd. Boston Soc C 10 J 2:291-326 O '15; Same abstr. Eng Rec 72: 538-41 O 30 '15; Same abstr. Ry R 57:665-7 N 20 '15

Track elevation at Lynn, Mass. C. B. Breed. II diggs plans Eng N 74:533-7 S 16 '15

Boston elevated railway

Statement of income, profit and loss for the fiscal year ended June 30, 1915. Elec Ry J 46:1008-9 N 13 '15

Boston Post road

Surfacing the Boston Post road. II Munic J 39:547-8 O 7 '15

Boston society of civil engineers

Duties and sphere of action of a local engineering society with special reference to the Boston society of civil engineers. H. P. Eddy. Boston Soc C 10 J 2:149-63 Ap '15

Proceedings. Boston Soc C 10 J 2:1*-39* Ap '15

Bottles

Bottle filling alarm. E. J. Hall. II Met & Chem Eng 13:347 Je '15; Same. Sci Am 8 80:284 O 30 '15

Boulder batholith

Boulder batholith and its bearing upon the future of mining in the district. J. A. Grimes. Eng & Min J 100:794 N 13 '15

Boulder batholith of Montana. P. Billingsley. diggs maps Am Inst Min 10 Bul 97:31-47 Ja '15; Discussion. 101:1128-37 My '15

Is the Boulder batholith a laccolith? discussion of paper by A. C. Lawson. A. Knopf. Econ Geol 9:306-402 Je '14

Boulder county, Colorado

Mining in Boulder county. Eng & Min J 100: 797-8 N 13 '15

Boulders

Boulder parapet for roadways in Palisades interstate park. II Eng N 74:162-3 J1 22 '15

Bowman, Austin Lord, 1861-1915

Sketch. por Eng N 73:1141 Je 10 '15; Eng Rec 71:758 Je 12 '15

Box cars. See Freight cars**Boxes**

See also Cardboard

Boy scouts

Boy scouts and forests. K. W. Woodward. II Am For 21:103-9 F '15

Boycott

Danbury hatters decision. Am Ind 15:7-10 F '15
Famous Danbury hatters' case decided in favor of the boycotted employer. Iron Tr R 56: 143-5 Ja 14 '15

Brake beams

Brake beams; Master car builders' association committee report. Ry R 56:834-5 Je 19 '15

Car control. J. Fitzmorris. Ry Age (Mech ed) 59:71-2 F '15

Safety hanger for brake beams. diggs Ry Age 59:201 Ag 13 '15

Brake rigging

Berdan brake rigging. diggs Ry Age (Mech ed) 89:483 S '15

Inexpensive slack take-up for brake rigging. II Elec Ry J 46:921 O 30 '15

Manual slack adjuster. diggs Ry Age 59:948 N 19 '15

Tests of standard and clamp brake rigging for passenger train service; abstract. E. E. Lacey. Am Soc M 10 J 27:734-5 O '15

See also Air brakes; Brakes

Brake shafts

Brake shaft drop handle and ratchet. diggs Ry Age (Mech ed) 89:43 Ja '15

Improved brake shaft arrangement. Buffalo, Rochester & Pittsburgh Ry. diggs Ry R 56: 320-1 Mr 6 '15

Square brake shaft. diggs Ry Age (Mech ed) 88:647-8 O 1 '14

Brake shoes

Brake shoe with malleable iron inserts. diggs Ry Age 59:168 J1 23 '15

Driver brake shoes. J. S. Shenfe. Ry Age 58: 616 Mr 19 '15

Brakes

Alternating-current coal hoist. R. E. Brown. II Am Inst M E Pro 34:615-22 Ap '15; Discussion. 34:2895-914 N '15

Alternating-current magnetic brake. II Elec R & W Elec'n 67:301 Ag 14 '15; Iron Age 96:414 Ag 19 '15; Iron Tr R 57:265 Ag 5 '15; Mach 21:1024-5 Ag '15

Automatic solenoid brake for crane, hoist, lift-bridge and similar service. II Elec R & W Elec'n 65:1230-1 O 26 '14; Mach 21:328-9 O '14

Dynamic braking. Elec R & W Elec'n 66:300-1 F 13 '15

Freight car hand brake. diggs Ry Age 58:944 Ap 30 '15; Same. Ry Age (Mech ed) 89:258-9 My '15

Hand-brake pressures. L. W. Horne. diggs Elec Ry J 46:567-8 J1 10 '15

Hand-brake pressures. W. C. Greenough. diggs Elec Ry J 46:276-7 Ag 14 '15

Hand brakes outlawed. Ry Age 58:1018-19 My 14 '15

More notes on regenerative braking. Elec Ry J 45:1101 Je 12 '15

Quick action lever hand brake. II Ry Age 59:398-9 Ag 27 '15

Railway vehicle brakes. diggs Engineer 119:67 Ja 15 '15

Regenerative braking. Engineer 119:458 My 7 '15

Regenerative braking. F. J. Sprague. Elec Ry J 46:1076-7 Je 5 '15

Train brake and signal equipment; Master car builders' association committee report. Ry R 56:832-3 Je 19 '15

See also Air brakes

Brakes, Automobile

Evolution of hub brakes. diggs Horseless Age 36:23-4 J1 7 '15

Brakes, Automobile—Continued

Three broad classes of brakes. A. L. Clayden, *diag* Automobile 32:452-5 Mr 11 '15
20,000,000 feet of brake lining. Automobile 32:509 Mr 18 '15

Brashear, John A., 1840-

President of the Am. Soc. M. 18. W. L. Seufte, *por* Eng N 73:389 F 25 '15

Brass

Annealing brass for forming and drawing operations. H. W. Dunbar, *il* Mach 21:560-1 Mr '15

Annealing of brass. F. Johnson, *il* Metal Ind n s 13:85-7 F '15

Annealing of brass cartridge cases. L. J. Krom, *il* diag Metal Ind n s 13:339-43 8 '15

Applications of metallic cobalt: experiments conducted with cobalt and copper alloys. D. B. Browne, *Metal Ind n s* 12:509-10 D '14

Brass and bronze offerings of copper. J. B. Schipper, *il* map Automobile 33:315-19, 368-70, 412-13 Ag 19-8 2 '15

Brass finishing and coloring. A. A. Le Fort, *Metal Ind n s* 13:144 Ap '15

Brass in water works construction with special reference to experience on the Catskill aqueduct; abstract. A. D. Plumb, *Eng & Contr* 43:57-8 Ja 20 '15; *Metal Ind n s* 12:500-2 D '14; *Mine J* 37:922-1 D 21 '14

Failure of structural brasses. P. D. Merben and R. W. Woodward, *Metal Ind n s* 13:453-61 N '15 (to be cont)

Heat treatment of copper and brass. C. R. Hayward, *il* Metal Ind n s 13:275-7 J1 '15

Rich gold color on brass. *Metal Ind n s* 13:239 Jo '15

Vanadium in brass. R. J. Dunn and O. E. Hudson, *Metal Ind n s* 13:330 Ap '15

Why brass is an expensive luxury in the engine room. Old Scotch, *il* Marine Eng 29:350 Ag '15

See also Brass founding; Tubes

Brass founders' ague

Note on review of Dr. Thompson's Occupational Diseases. J. W. Luther, *J Ind & Eng Chem* 7:451-2 My '15

Brass founding

Copper alloys with notes on brass founding. H. L. Benson, *diag* Metal Ind n s 13:318-1 Ag '15

Developments in electric brass furnace melting: new type to utilize the pinch effect. G. H. Garner and C. Hedger, *il* diag Foundry 42:187-90 D '14; *Same* cont. *Iron Age* 91:1192-5 D 31 '14; *Abstract, Ind Eng* 15:561 F '15

Difficulties with yellow brass trap covers. *il* Foundry 43:29-30 Ja '15

Drop-pouring process of casting: the solution of a difficult brass foundry problem. E. A. Barnes, *il* Metal Ind n s 12:511 12 D '14

Making brass castings with emergency equipment. J. Lechdron, *diag* Foundry 43:32-2 Jo '15

Mushroom gates and risers. *Foundry* 43:63 F '15

Practical suggestions for the brass foundry. R. Meeks, *Metal Ind n s* 13:99 Mr '15

Reclaiming brass sweepings. A. W. Leanne, *Iron Age* 95:940 Ap 20 '15; *Same*, *Foundry* 43:191-2 My '15; *Same*, *Metal Ind n s* 13:187-8 My '15

Tests of natural gas fired brass furnaces. F. L. Wolf and R. B. Burr, *diag* Foundry 43:153-7 Ap '15

Top-pouring brass floors. J. L. Seuchter, *diag* Foundry 43:231-2 Jo '15

Trolley wheel difficulties. *Foundry* 43:315 An '15

Use of electricity in melting brass. H. L. Torrey, *il* diag *Iron Tr R* 57:319-20, Ap 12 '15

Brass foundries

Brass foundry equipment and management. W. H. Parry, *Metal Ind n s* 13:5-6, 61, 184, 462 Ja-F, My, N '15

Brass foundry profits. W. H. Parry, *Metal Ind n s* 13:364 8 '15

Brass goods manufacturing plant. P. W. Blair, *il* Metal Ind n s 13:269-73 J1 '15

Cost keeping in the brass foundry. C. O. Skeoper, *Metal Ind n s* 12:497-9 D '14

Efficiency in the brass foundry. W. H. Dunn, *Metal Ind n s* 13:327-9 Ag '15

Efficient methods of the Yale & Towne mfg. co. and details of its specially equipped shop. H. C. Peters, *il* plans *Foundry* 43:129-31, Ap '15; *Same* (continuing for tools and hand work). *Iron Tr R* 56:809-161, Ap 22 '15
Team work in a brass plant. P. W. Blair, *Foundry* 43:779-80 J1 '15

See also Brass founding

Brass plating

Control of brass and copper plating solutions. A. D. Cowperthwaite, *Metal Ind n s* 13:65-9 F '15

Brauneria angustifolia

Constituents of the root of brauneria angustifolia. F. W. Heyl and M. C. Hunt, *Am Chem Soc J* 37:1369-8 J1 '15

Brazil

Banking and credit in Argentina, Brazil, Chile, and Peru. E. N. Harley, *J Ind Eng & Econ Com* 90:1-22 '14

Financial developments in South American countries. W. H. Lamb, *J Ind Eng & Econ Com* 90:19-28 '15

Reconquest of Brazil: an expedition. L. P. Miller, *il* Soc Am 8:20-21, 2, 26, 27, 30, 31, 32, 33, 34, 35

Commerce

America and Brazil in the world. M. Dunn, *Metal Work* 32:762-3 D 11 '14

Electrical machinery in Brazil. H. C. Peters, *il* Elec W 6:11-8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

See also Electrical machinery; Iron

Cont. fields of South America. B. C. Dyer, *Foundry* 43:26-7 J1 '15

Electrical opportunities in Brazil. H. C. Peters, *il* Elec W 6:11-8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700,

Brewing *Continued*

Starch-forming enzyme from malt: its action on the hemicelluloses and its commercial application to brewing. C. B. Davis. *II J Ind & Eng Chem* 7:115-18 *I* '15

Brick. See Bricks

Brick construction

Estimating the cost of mill buildings. C. F. Dingman. *Eng & Contr* 44:185 *S* 8 '15

Large brick piers tested at laboratory of Bureau of standards; abstracts. J. L. Griffith and J. C. Briggs. *II Eng Rec* 71:460-1 *Ap* 10 '15; *Eng N* 74:242-3 *Ag* 5 '15; *Ind Eng* 15:106 *S* '15

See also Bricklaying; Pavements, Brick

Brick handling

Cost of loading bricks into a box car by means of a portable belt conveyor. A. C. Haskoll. *diag Eng & Contr* 44:204 *S* 15 '15

Handling bricks with gravity roller conveyors. W. B. Conant. *II Eng N* 74:834-5 *O* 28 '15

Moving brick by wheelbarrow. W. B. Conant. *II Eng N* 74:701 *O* 7 '15

Brick-making. See Brickmaking

Brick pavements. See Pavements, Brick

Bricklaying

British method of laying bricks. *Bldg Age* 37:67-8 *I* '15

Industrial education in the South: the course in bricklaying and plastering as taught in the Hampton Institute trade school. *II Bldg Age* 37:67-9 *Ja* '15

Saving money in the laying of brick. *II Bldg Age* 37:46-8 *Ja* '15; Same cond. *Eng Rec* 71:90 *Ja* 16 '15

Cost

Smelter brick-laying costs. *Eng & Min J* 100:109 *JI* 17 '15

Brickmaking

Brick-plant production increased by electric drive. *II Elec W* 65:794 *Mr* 27 '15

Electrically operated brick factory at Springfield, Ill. *II Elec W* 65:671-3 *Mr* 13 '15

Electricity in brick-making. *II Elec R & W* 65:65-9 *Ja* 9 '15

Making brick without clay. *Ry Age* 58:468 *Mr* 12 '15; *Sci Am* 112:351 *Ap* 10 '15

Motor applications of the brick manufacturing industry. T. Z. Simpson. *Am Inst M E* 17:34:3023-8 *I* '15

Motors show saving in replacing gasoline engines in brickyard. *II Elec W* 65:258 *JI* 31 '15

New building material invented by A. Mallonowsky. *II Munic Eng* 48:180-22 *Mr* '15

Bricks

Checker design for open hearths. W. A. Janssen. *Iron Tr R* 57:624-5 *S* 30 '15

Diatom heat-insulating brick. *Met & Chem Eng* 13:129 *I* '15

Standard prices for furnace brick. *Iron Tr R* 55:1185-6 *I* 24 '14

What are porous bricks? *Bldg Age* 37:60 *JI* '15

See also Brick construction; Bricklaying; Brickmaking; Clay; Fire brick; Pavements, Brick; Tiles

Testing

Favorable tests of Olimira brick. *Eng Rec* 70:649 *I* 12 '14

Rattler test for paving brick abandoned in St. Louis. M. Schuyler. *Eng Rec* 72:200-1 *Ag* 14 '15

Spherical bearings versus flat plates in crushing tests on bricks. M. L. Baker and A. F. Shaw. *diag Assn Eng Soc J* 55:123-8 *O* '15

Bricks, Concrete. See Concrete bricks

Bricks, Glass. See Glass bricks

Brick abutments. See Bridges Abutments

Bridge approaches

Concrete chuting plant with braced boom and chute. E. L. Jones. *II Eng N* 73:193-4 *I* 4 '15

Design features of the approaches of the North side Point bridge, Pittsburgh, Pa. *diag Eng & Contr* 42:196-8 *Ag* 26 '14

Highway bridge approach details. F. Barber. *II Eng N* 73:961-3 *My* 20 '15

Plant and working methods on approaches to North side Point bridge. E. L. Jones. *II diag Eng N* 72:124-6 *I* 3 '14

Slip of approach embankment damages concrete bridge, Herkimer, N. Y. A. T. Clark. *II Eng N* 74:771 *O* 21 '15

Bridge contracts

Instructions of the Pennsylvania state highway commissioner to bridge companies. *Eng & Contr* 43:79 *Ja* 27 '15

Sizing-up and bidding on a contract in dull times. *diag Eng N* 73:682-3 *Ap* 8 '15

Bridge design

Allowing for impact in bridge calculations. J. D. W. Ball. *diag Engineer* 120:151-3 *Ag* 13 '15

Bridge for Holland government railway in Java. *II diag Rly R* 57:404-5 *S* 25 '15

Center bearing, machinery and gates, Congross St. swingbridge, Troy, N. Y. *diag plan Eng N* 73:804-5 *Ap* 29 '15

Chowapenko & Ohio Northern railway bridge over the Ohio river at Selotville, O. *diag Eng & Contr* 44:84-5 *Ag* 4 '15

Concrete arch bridge at Saskatoon. *II diag Eng N* 73:434-6 *Mr* 4 '15

Concrete viaduct of a new type; eastern viaduct, New York Connecting R. *II diag Eng N* 73:886-7 *My* 6 '15

Cost of railway footbridges. *diag Engineer* 120:107-8, 221-3, 240-2, 266-8 *Ag* 37-8 *I* 17 '15

Design and construction of a reinforced concrete truss bridge with braced counterfort abutments near Morhyr, Wales. C. B. Hol-lowsay. *diag Eng & Contr* 44:330-2 *N* 17 '15

Design and construction of the Main street reinforced concrete viaduct at Fort Worth, Tex. S. V. Bowen. *diag Eng & Contr* 43:211-16 *Mr* 10 '15

Design and construction of the San Jacinto street reinforced concrete bridge, Houston, Texas. *II diag Eng & Contr* 42:492-5 *N* 25 '14

Design and construction of the substructure of the Buffalo River lift bridge, Buffalo, N. Y. *II diag Eng & Contr* 44:362-5 *N* 10 '15

Design and erection of the Pennsylvania lift bridge no. 458 over the south branch of the Chicago river. W. L. Smith. *diag W Soc* 35 *J* 20:478-88 *My* '15; Same. *II J* 55:519-24 *Ap* 17 '15; Same cond. *Eng Rec* 71:611-12 *My* 15 '15

Design, construction and detailed costs of the Richellen river bridge, Lacelle Junction, Quebec. *II diag Eng & Contr* 42:542-6 *D* 9 '14

Design, construction and detailed labor costs of the substructure of the double-leaf trunnion bascule bridge at Chicago avenue, Chicago. *diag plan Eng & Contr* 42:388-90 *O* 21 '14

Design features of a single-leaf trunnion bascule bridge over the Channel street waterway, San Francisco, Cal. *diag plans Eng & Contr* 44:248-50 *S* 29 '15

Design features of the Alger bridge, Columbus, Ohio a 1,166-ft. reinforced concrete structure. *diag Eng & Contr* 44:206-9 *S* 15 '15

Design features of the cantilever, simple-truss and girder spans of the Bloomfield bridge, Pittsburgh. *diag Eng & Contr* 42:210-3 *S* 9 '14

Design features of the East Kansas avenue bridge over the Kansas river at Kansas City, Kan. *diag Eng & Contr* 43:496-9 *Ja* 2 '15

Design features of the substructure and approaches of the Bloomfield bridge, Pittsburgh. *diag Eng & Contr* 42:295-7 *S* 23 '14

Design of concrete highway bridges with special reference to standardization. C. B. McCullough. *diag Eng & Contr* 43:268-70 *Mr* 24 '15

Design of substructures for wooden and combination highway bridges. C. E. Edgerton. *Eng & Contr* 44:250-3 *S* 29 '15

Design of the 531-ft. truss spans of the North side Point bridge, Pittsburgh, Pa. *diag Eng & Contr* 41:358-61, 684-5; 42:196-8 *Mr* 25, *Ja* 17, *Ag* 26 '14

Design of the main shoes of the new Quebec bridge. *II diag Engineer* 118:527-8 *D* 4 '14

Design of the reinforced concrete cantilever bridge on Rumynede avenue, Cincinnati. *diag Eng & Contr* 43:271-2 *Mr* 24 '15

Bridges -Continued

- Bridge cost record used by the Illinois highway commission. Eng & Contr 42:200-3 Ag 28 '14
- Bridges and buildings in cities, 1915; tabulation. Munic Eng 48:267-8 Ap '15
- Completing the new Mississippi river bridge at St. Louis. Eng N 73:954-6 My 13 '15
- Construction and cost data on some highway bridge work in Alaska. E. A. Pope. Eng & Contr 42:387-8 O 21 '14
- Construction and maintenance of roads and bridges from July 1, 1913, to December 31, 1914. U S Agric Bul 284:1-64 '15
- Construction details of bridge across Portland harbor. Il diag Eng N 74:885-8 N 4 '15
- Construction of wooden and combination highway bridges. G. B. Edgerton. diag Eng & Contr 44:389-91 O 13 '15
- County road bridges in 1915; tabulation. Munic Eng 48:268-70 Ap '15
- Design and construction of the Lower Ganges bridge in India. Il diag map Eng & Contr 42:478-81 N 18 '14
- Design features of the East Kansas avenue bridge over the Kansas river at Kansas City, Kan. diag Eng & Contr 43:496-9 Jo 2 '15
- Discussion of the administrative and design features of highway bridge and culvert work. A. Marston. Eng & Contr 42:589-90 D 23 '14
- Eleven-span wooden arch bridge of fifty years ago. Il Eng Rec 71:142 Ja 30 '15
- Highway bridges and structures. W. S. Gearhart. Good Roads n 10:254-7 N 6 '15
- Instructions to employees governing bridge work by Pennsylvania state highway department. Eng & Contr 43:32-3 Ja 13 '15
- Iowa state highway bridges not too heavy. Eng Rec 71:138-9 Ja 30 '15
- Methods and equipment used in constructing the superstructure of the Detroit-Superior high level bridge in Cleveland, O. Il diag Eng & Contr 44:16-18 J 7 '15
- Summary of bridge work done by Wisconsin highway commission during period July 1, 1911-Jan. 1, 1915. Eng & Contr 43:457-8 My 19 '15
- See also* Arches; Bridge design and other headings beginning Bridge; Culverts; Draw-bridges; Elevated railroads; Girders; Military bridges; Pontoon bridges; Trussless; also names of cities, subhead Bridges

Abutments

- Earth-backed abutments for concrete arches. diag Eng N 74:786-7 O 21 '15

Approaches

See Bridge approaches

Cost

- Construction of the Twelfth street traffic-way viaduct, Kansas City, Mo. E. E. Howard. diag Eng & Contr 44:331-2 O 27 '15
- Cost of concrete culverts and bridges in Milwaukee county, Wisconsin, in 1913. Il Eng & Contr 42:486-7 N 18 '14
- Cost of highway bridges. C. M. Spofford. Elec Ry J 46:53-4 J 10 '15
- Cost of railway footbridges. diag Engineer 120:197-9, 221-3, 240-2, 266-8 Ag 27-8 '15
- Costs of bridges for grade-crossing elimination. C. N. Bulbridge. Eng Rec 71:770 Jo 19 '15
- Design, construction and detailed costs of the McKinley Ford bridge, La Salle county, Ill. Il diag Eng & Contr 43:179-83 E 24 '15
- Design, construction and detailed costs of the Richelieu river bridge, Lacelle Junction, Quebec. Eng & Contr 42:585-9 D 23 '14
- Design, construction and detailed labor costs of the substructure of the double-leaf trunnion bascule bridge at Chicago avenue, Chicago. C. O. Johnson. Il Eng & Contr 42:426-33 N 4 '14

Damages from floods, etc.

- Highway bridges and structures. W. S. Gearhart. Good Roads n 10:254-7 N 6 '15
- How a washed-out bridge-span was pulled out of a river. plan Eng N 73:634 Ap 1 '15

Design

See Bridge design

Erection

- Bridge renewal without falsework or interference with traffic. Il diag Ry Age 58:318-19 E 19 '15
- Building the new Quebec bridge; the world's largest truss span. Il Iron Tr R 56:562-3 Mr 18 '15
- Contractors span 180-foot canyon without using falsework. Il Eng Rec 71:181-2 F 6 '15
- Design and construction work preliminary to the actual shifting of a double-track swing bridge on the Chicago & Northwestern Ry., at Milwaukee. plans Eng & Contr 43:356-9 Ap 21 '15
- Design and erection of the Pennsylvania lift bridge no. 458 over the south branch of the Chicago river. W. W. Priest. Il diag W Soc 10 J 20:488-500 My '15; Same. Ity R 56:524-8 Ap 17 '15; Same cond. Eng Rec 71:613 My 15 '15
- Dropping old timber trestles with dynamite. J. H. Stack. Il Ry Age 58:1079-80 My 21 '15
- Economical method of replacing trusses with girders. S. T. Corey. Il diag Ry Age 58:1077-9 My 21 '15
- Erecting railroad viaduct superstructure. Il diag Eng Rec 70:668-70 D 19 '14
- Erecting reinforced concrete trestles. E. M. Grimo. Il Ity Age 58:1080 My 21 '15
- Erection at Hell Gate arch chocks calculations. Il Eng Rec 72:220-1 Ag 21 '15
- Erection of 591-ft. steel arch begun at Cleveland. Il Eng N 74:283 Ag 5 '15
- Erection of new Quebec bridge. Il P. Borden. Il Eng Rec 71:80-1 Ja 18 '15
- Erection of steel arch span, Detroit-Superior viaduct. Il diag Eng N 74:366-7 Ag 19 '15
- Erection progress on the Quebec bridge. Il Eng & Contr 44:170-1 S 1 '15
- Erection traveler, new Quebec bridge. Il P. Borden. Il plans Eng N 73:417-22 Mr 4 '15
- Heavy travelers erect Hell Gate arch over East river. Il Eng Rec 71:568-70 My 1 '15
- Hell Gate arch erection from Ward's island started; views. Eng Rec 71:789 Jo 19 '15
- Longest riveted simple trusses erected around old bridge by cantilever method at Pittsburgh. Il diag Eng Rec 72:82-4 J 17 '15
- Methods and equipment used in erecting girder spans of Pennsylvania avenue viaduct, Kansas City, Mo. W. E. Wynne. Il plan Eng & Contr 43:539-40 Jo 16 '15
- New methods evolved in building world's largest bridge; Quebec erection. Il Eng Rec 72:96-100 J 24 '15
- 977-ft. Hell Gate bridge becomes an arch. Il Eng N 74:708-9 O 7 '15
- Piecemeal erection of a bridge on the Boston & Maine R. R. K. W. Lemcke. Il diag Eng N 74:1057-9 D 2 '15
- Placing through girder spans by lateral movement. W. W. Fair. Ity Age 59:340 Ag 20 '15
- Progress of erection of the new Quebec bridge. Il plate (supp) Engineer 120:416-17 O 29 '15
- Progress of the new Quebec bridge. Il plan Engineer 119:101-3 Ja 29 '15
- Progress on Hell Gate bridge, New York city. Il Eng N 74:236-7 J 19 '15
- Proposed centering for large-span stone bridges. S. Berg. diag Engineer 119:472-4, 521-3, 569-70 My 14, 28, Je 11 '15
- Quebec bridge work in 1915. Il Eng N 74:473-5 S 2 '15
- Raising a concrete girder bridge with screw jacks. W. R. Mason. Eng & Contr 44:209 S 15 '15
- Rapid erection of temporary timber bridge. S. C. Corson. Il Eng N 74:268 Ag 5 '15
- Rebuilding the Muskingum bridge near Connehoton. Il diag Eng N 74:105-8 J 15 '15
- Record set for weight of steel erected in one day at Randall's island on Hell Gate bridge approach. Il Eng Rec 71:399-400 Mr 27 '15
- Renewing a busy main line bridge on the Santa Fe. L. C. Lawton. Il Ity Age 59:350-1 Ag 20 '15
- Renewing heavy swing span by floating into place; old North Western bridge in Milwaukee removed and new span weighing 800 tons placed in one day. Il plan Ity Age 58:836-8 Ap 16 '15
- Replacing a small bridge over a highway. C. V. Chamberlin. Il Ity Age 58:1081 My 21 '15

Bridges—Erection Continued

Replacing Howe truss spans without false-work. J. H. Sheldon. *Eng Rec* 58:339 30 Ag 20 '15

Work on the new Quebec bridge during the first erection season. H. P. Borden. *Eng Rec* 73:1-4 Ja 7 '15

World's longest arch, across Hell Gate, New York city, is closed and swung as planned. *Eng Rec* 72:438-40 O 9 '15

See also Bridges—Reconstruction

Estimates

Estimating curves for standard bridges of the Illinois highway department. G. F. Hurch. *Eng Rec* 72:433-6 F 10 '15; Same cond. *Eng Rec* 72:471-2 Ag 7 '15

Fires

Bridge-floor fire destroys Detroit-Belle Isle bridge. *Eng Rec* 73:1006-7 M 6 '15

Expansion-joint action in Connaught bridge fire. *Eng Rec* 73:1035 M 27 '15

Fire damage to steel viaduct and method of repair. *Eng Rec* 71:1037 9 N 25 '15

Fire wrecks ten spans of Belle Isle bridge, Detroit. *Eng Rec* 71:559 M 8 '15

Wood-block bridge-floor fire, Vancouver. H. P. Jefferson. *Eng Rec* 73:955 6 M 13 '15

Floors

Asphalt pavement added off lamelle bridge. *Eng Rec* 73:1051 M 27 '15

Concrete bridge floors. Concrete. *Eng Rec* 72:498 46 '15

Congress street bridge across the Hudson river at Troy, N. Y.; structural features. H. W. Dodge. *Eng Rec* 73:571 5 M 25 '15

Crested wood blocks suitable for bridge floors if fireproofed. L. T. Emerson. *Eng Rec* 71:721 16 Jc 5 '15

Floor for steel highway bridges in Illinois. C. Elder. *Eng Rec* 70:561 5 13 12 '14

Same. *Eng Rec* 73:8 10 Ja 6 '15; Same with discussion. Good Roads 11 9:50-1 F 6 '15

Methods used to waterproof bridge floor. *Eng Rec* 73:399 46 M 5 '15

Paving problems of Queenboro bridge, New York. *Eng Rec* 71:396 7 Ag 26 '15

Recent tendencies in concrete reinforced deck construction. *Eng Rec* 73:38 39 Ap 2 '15

Reinforced concrete floor for beam girders designed to replace a wooden floor. C. E. Nagel. *Eng Rec* 73:313 11 Ag 1 '15

Results of tests to determine the distribution of loads from concrete floor slabs to steel joists; abstracts. *Eng Rec* 71:36 1 1 N 6 '15

Same. *Eng Rec* 72:378 30 N 6 '15; *Eng Rec* 73:33 N 11 '15

Solid deck trestle and bridges on the Illinois Central. *Eng Rec* 73:73 30 Ag 11 '15

Surfacing bridges. F. H. Lander. *Eng Rec* 73:50-1 Ag '15

Waterproofing masonry street floor bridges; abstract. R. T. Munnet. *Eng Rec* 73:79 81 Ja 27 '15; *Eng Rec* 71:56 2 3 F 1 '15

Revised specifications. *Eng Rec* 71:366 11 M 15 '15; Discussion. A. W. Carpenter. *Eng Rec* 73:557-8 Ap 21 '15

Wholesale concrete bridge floor slabs placed under curb. *Eng Rec* 72:604 5 O 16 '15

Wood block and granite for bridge floor. R. A. Byrne. *Eng Rec* 73:347 9 Ja 1 '15

Wood block replaces plank on steel bridge flooring. E. Stengel. *Eng Rec* 71:309 M 6 '15

Foundations and piers

Blocking of concrete bents used in raising steel bridge. H. C. Hardman. *Eng Rec* 72:460 O 9 '15

Bridge foundations and the use of pneumatic caissons for constructing bridge foundations in Canada. *Eng Rec* 73:298 301-4 23 '15

Building concrete caissons in the Platte river. J. H. Morham. *Eng Rec* 73:353 3 Ag 27 '15

Chattanooga creek bridge of the N. C. & St. L. C. H. Johnson. *Eng Rec* 73:443 4 Ag 20 '15

Concrete pier work on the Cumberland valley R. R. bridge over the Potomac. *Eng Rec* 73:124 5 Ja 21 '15

Concrete viaduct of a new type, at Glen Avondale, New York. *Eng Rec* 73:886 7 M 6 '15

Deep bridge pier, sand without an abutment. *Eng Rec* 73:100 1 11 '15

Design and construction of the substructure of the Buffalo river bridge. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Design, construction and detailed plan of the substructure of the double bed truss span for cable bridge at Chicago avenue, Chicago. *Eng Rec* 73:100 1 11 '15

Inspection

See Bridges—Inspection

Load

Chart of equivalent uniform load for highway bridges. H. B. Nicholson. *Eng Rec* 73:100 1 11 '15

Bridges—Load—(Continued)

- Equivalent uniform loads for long-span bridges. D. B. Steinman. Eng N 73:370 F 25 '15
 Inverted bridge which should have failed carries heavy load. Il Eng Rec 72:22 J 3 '15
 Overloads allowed in operating railroad bridges. J. E. Greiner. Eng Rec 72:387 S 25 '15
 Results of tests to determine the distribution of loads from concrete floor slabs to steel joists; abstracts. Eng & Contr 44:365-7 N 10 '15; Eng Rec 72:578-80 N 6 '15; Eng N 74:933 N 11 '15

Reconstruction

- Bridge renewal without falsework or interference with traffic. Il diag Ity Age 58:318-19 F 19 '15
 Dismantling truss spans and erecting plate girders without false work. W. & L. B. It. R. E. U. Smith. Il diags Ity R 56:340-2 Mr 13 '15
 Economical method of replacing trusses with girders. S. T. Corey. Il diags Ity Age 58:1077-9 My 21 '15
 Erecting new trusses on a canal bridge and dam. W. R. Browne. Il diags Eng N 74:173-4 J 21 '15
 Lifting one truss of a bridge to place larger shoe. W. R. Browne. Il diags Eng N 73:1031-5 My 27 '15
 New bridge across the Missouri river at Sib-loy, Mo. Il diags Ity Age 59:13-16 J 2 '15
 Rebuilding a highway bridge by end-pin slings. R. C. Hardman. Il Eng N 73:352-3 F 18 '15
 Rebuilding piers and abutments. Black river bridge. J. U. Smith. Il diags Eng N 74:1046-7 N 25 '15
 Rebuilding the Burlington's Platte river bridge. J. H. Merriam. Il diags Eng N 74:728-32 O 14 '15
 Reconstruction of Mississippi river bridge at Keokuk. diag Eng N 74:360-2 Ag 5 '15
 Reconstruction of piers of Little Rock Junction bridge across the Arkansas river at Little Rock. C. E. Smith. diags plan Eng & Contr 44:85-8, 124-7 Ag 4, 18 '15
 Removing through trusses without dismantling. Il Ity Age 58:474 Mr 12 '15
 Renewing a busy main line bridge on the Santa Fe. L. C. Lawton. Il Ity Age 59:350-1 Ag 20 '15
 Renewing bridges under traffic on the Wheeling & Lake Erie R. R. Il Eng & Contr 43:314 Ap 7 '15
 Renewing Howe trusses without delay to traffic. J. J. Wishart. Il Ity Age 58:1081-2 My 21 '15
 Replacing a large truss bridge by lateral movement. J. C. Bland and J. Miller. Il Ity Age 58:460-2 Mr 12 '15
 Replacing truss bridges by deck plate-girders under traffic. W. & L. B. It. R. E. U. Smith. Il diags Eng N 73:491-3 Mr 11 '15
 Supporting a Pratt-truss span during the reconstruction of its abutments. Il Eng & Contr 43:360-1 Ap 21 '15

See also Bridges—Repair

Removal

- Cutting up a bridge with the oxyhydrogen torch. Il Sci Am 112:71 Ja 16 '15
 Dropping old timber trestles with dynamite. J. H. Black. Il Ity Age 58:1079-80 My 21 '15

See also Bridge moving

Repair

- Conting disintegrated stone abutments with concrete. Il Eng Rec 71:337-8 Mr 13 '15
 Fire damage to steel viaduct and method of repair. Il diags Eng N 74:1037-9 N 25 '15
 Lifting bridge trusses to adjust rollers. H. T. Welby. Il diag Eng N 71:555-6 S 16 '15
 Overcoming defective foundations for three piers. C. E. Smith. Il plan Ity Age 57:151-5 J 18 '14
 Taking the washed-out Bow River bridge. W. W. Hazelwood. Il diag Eng N 73:782-3 Ap 22 '15
 Repair work on the Dallas-Oak Cliff viaduct. diag Eng N 73:1052 My 27 '15
 Replacing piers in a railway bridge under traffic. Il Eng N 73:684-5 Ap 8 '15

- Selection and use of bridge and building tools. S. C. Tanner. Il Ity Age 59:339-40 Ag 20 '15
 Steel billets needle bridge shoe in quarters too close for beams. T. J. Wilkerson. Il diags Eng Rec 72:58 J 17 '15
 Unique method for the replacement of trusses. Il Ity Age 58:156-7 Ja 22 '15

See also Bridges—Reconstruction

Specifications

- General specifications for bridge work of Illinois state highway commission. Eng & Contr 42:390-2 O 21 '14
 Specifications for waterproofing solid steel-floor railroad bridges. S. T. Wagner. Eng & Contr 43:79-81 Ja 27 '15; Same rev. Eng & Contr 44:209-11 S 15 '15

Bridges, Arched

- Architectural effects secured in Glens Falls arch bridge over Hudson river. Il diags Eng Rec 72:574-6 N 6 '15
 Bridge work of the C. M. & St. P. Ry. Il plan Ity 11 56:335-8 Mr 13 '15
 Cabrillo bridge at the San Diego exposition. Il diags Eng N 73:926-8 My 13 '15
 Closing Detroit-Superior arch. Il Eng N 74:813-14 O 21 '15
 Construction of the Gwynns Falls arch bridge. Il diag Ity Age 57:1037-40 D 4 '14
 Construction of the Hallstead cut-off. D. L. & W. It. R. Tunkhannock viaduct and Martin's Creek viaduct. Il diags Ity R 56:143-8 Ja 30 '15
 Design and construction of provincial highway bridge at Mestre, Italy. A. M. Wolf. diags Concrete Cem 6:294-6 Jo '15
 Details of main span of Detroit-Superior bridge at Cleveland. diags Eng Rec 70:640-1 D 12 '14
 Erection of steel arch span, Detroit-Superior viaduct. Il diags Eng N 71:366-7 Ag 19 '15
 First concreting on Brooklyn-Brighton viaduct, Cleveland. Il diags Eng N 74:481-6 S 9 '15
 Graphical analysis of arches with fixed ends greatly simplified. C. S. Whitney. Eng Rec 72:321-6 S 11 '15
 Handling steel centers for concrete arches. H. B. Ketchum. Il Eng N 74:462-3 S 2 '15
 Hell-Gate arch bridge and the New York Connecting railroad. Il diag map Ity R 57:453-61 O 9 '15
 Largest arch bridge in the world; Hell Gate bridge. Il Sci Am 113:340-1; O 16 '15
 Method for determining two-hinged arch reactions. C. S. Whitney. Eng & Contr 44:123-4 Ag 18 '15
 Methods and equipment used in constructing the superstructure of the Detroit-Superior high level bridge in Cleveland. O. Il diags Eng & Contr 44:10-13 J 17 '15
 New concrete arch viaduct of the Philadelphia, Baltimore & Washington R. R. over Gwynns Falls, Baltimore. Il plans map Ity R 56:345-8 Mr 13 '15
 977-ft. Hell Gate bridge becomes an arch. Il Eng N 74:708-9 O 7 '15
 Old English bridge replaced by new flat-arch structure. diags Eng Rec 71:720-1 Jo 5 '15
 Ornamental bridge at Akron built of slag concrete. Il Eng N 74:769-70 O 21 '15
 Progress on Summit cut-off of the Lackawanna. Il diags Ity Age 58:235-9 F 5 '15
 Proposed centering for large span stone bridges. S. Borg. diags Engineer 119:172-4, 521-3, 559-70 My 14, 28, Je 11 '15
 Reinforced-concrete arch bridge has stone facing. Il Eng Rec 72:164-5 Ag 7 '15
 Reinforced-concrete highway arch for grade separation. diags Eng Rec 70:703-1 D 26 '14
 Steel arch bridge on curved gradient in the Blotch valley. Il diags Engineer 118:549-50 J 11 '14; Same cond. Eng M 48:760-1 F '15
 Tunkhannock viaduct nearing completion. Il Eng Rec 72:42-3 J 10 '15
 World's longest arch, across Hell Gate, New York city, is closed and paving planned. Il Eng Rec 72:438-40 O 9 '15

Bridges, Bascule

- Bascule bridge at Sault Ste. Marie acting as a simple truss span. Il diags Eng N 73:108-10 Ja 21 '15
 Chehalis river temporary bascule bridge. Il diags Eng Rec 71:17 Ja 2 '15

Bridges, Bascule.—Continued

- Deep bridge piers sunk without air. *Il* *Eng* N 74:70-4 J1 8 '15
- Design and construction of the sub-structure of the Buffalo river lift bridge, Buffalo, N. Y. *Il* *Eng* & *Contr* 44:362-5 N 10 '15
- Design, construction and detailed labor costs of the substructure of the double-leaf trunnion bascule bridge at Chicago avenue, Chicago. *Eng* plan *Eng* & *Contr* 42:388-90, 426-33 O 21, N 4 '14
- Design features of a single-leaf trunnion bascule bridge over the Channel street waterway, San Francisco. *Eng* plans *Eng* & *Contr* 44:348-50 S 29 '15
- Design features of the Gatun river bascule bridge, Panama Canal Zone. P. L. Kaufman, plan *Eng* & *Contr* 44:113-14 J1 7 '15
- Development of the Sudan. *Il* map plans *Eng* Engineer 119:271-4 Mr 19 '15
- Double-deck bascule bridge over Chicago river. H. E. Young. *Il* *Eng* *Eng* N 74:876-9 N 4 '15
- Double-leaf bascule railway bridge. *Il* *Eng* Engineer 120:246-7 S 10 '15
- Interesting structure over the Buffalo river. *Il* *Eng* map *Eng* Age 59:465-7 S 10 '15
- New Haven road to build new Thames river bridge. *Eng* N 74:1053 N 25 '15
- Rail-end connections for bascule bridges. *Il* *Eng* *Eng* N 73:1216-17 Je 21 '15
- Rolling lift bridges for the Delany connecting railroad. *Il* *Eng* R 56:359-60 Mr 13 '15
- Small bascule bridge; Pere Marquette R. R. *Il* *Eng* plan *Eng* N 73:929 My 13 '15
- Substructure of the Lake street bascule bridge at Chicago. H. E. Young. *Il* *Eng* N 74:934-6 N 11 '15
- Trolley wire on double-leaf bascule bridge. S. L. Foster. *Eng* *Eng* Ry J 46:1042-4 N 20 '15

Bridges, Cantilever

- Balanced cantilever reinforced-concrete bridge, Chester, Penn. *Il*; H. Quimby. *Il* *Eng* *Eng* N 73:578-81 Mr 25 '15
- Construction features of the Bloomfield bridge, Pittsburgh, Pa. A. B. Sertore. *Il* *Eng* & *Contr* 43:6-8 Ja 6 '15
- Construction features on the reinforced concrete cantilever bridge on Rummynode avenue, Cincinnati. *Il* *Eng* & *Contr* 43:312-13 Ap 7 '15
- Design features of the cantilever, simple-truss and girder spans of the Bloomfield bridge, Pittsburgh, Pa. *Eng* *Eng* & *Contr* 42:240-3 S 9 '14
- Design features of the substructure and approach of the Bloomfield bridge, Pittsburgh. *Eng* *Eng* & *Contr* 42:296-7 S 23 '14
- Design of the reinforced concrete cantilever bridge on Rummynode avenue, Cincinnati. *Eng* *Eng* & *Contr* 43:271-2 Mr 24 '15
- Erection traveler, new Quebec bridge. H. P. Jordan. *Il* plans *Eng* N 73:417-22 Mr 4 '15
- Hopple street viaduct, Cincinnati. *Il* *Eng* *Mun* J 39:179-83 Ag 5 '15
- Ornamental arch effect secured by cantilever design, Chester, Pa. *Eng* *Rec* 71:164 1st 6 '15
- Provision for traction streamers in Quebec bridge. C. A. Norton. *Eng* *Rec* 71:492-3 Ap 17 '15
- Reinforced-concrete cantilever bridges. A. E. Hill; L. E. Smith; P. H. Frankland. *Il* *Eng* N 73:790-2 Ap 22 '15

Bridges, Concrete

- Architectural effects secured in Glen Falls arch bridge over Hudson river. *Il* *Eng* *Rec* 72:574-6 N 6 '15
- Balanced cantilever reinforced-concrete bridge, Chester, Penn. *Il*; H. Quimby. *Il* *Eng* *Eng* N 73:578-81 Mr 25 '15
- Belgian bridge in reinforced concrete. *Sci* *Am* 112:335 Ap 10 '15
- Bridge work of the C. M. & St. P. Ry. *Il* plan *Ry* *Il* 56:335-8 Mr 13 '15
- Bridges and viaducts on the Multnomah county section of the Columbia river highway. *Il* *Good Roads* N 10:243-7 N 6 '15
- Building a long concrete viaduct at St. Louis. P. A. Richardson. *Il* *Eng* *Rec* 70:692-3 D 25 '14
- Cabrillo bridge at the San Diego exposition. *Il* *Eng* *Eng* N 73:926-8 My 13 '15

- Castling concrete-slab bridges for the Pennsylvania. R. R. L. M. Schrufer. *Il* *Eng* *Eng* N 71:125-6 J1 15 '15
- Completing the summit cut-off of the Lackawanna. *Il* *Eng* *Age* 59:809-10 O 20 '15
- Concrete arch bridge at Saskatoon. *Il* *Eng* *Eng* N 73:434-6 Mr 4 '15
- Concrete bridges with stone and brick facing. C. E. Dryer. *Il* *Eng* N 73:1214-15 Je 21 '15
- Concrete highway bridges: some data on highway bridges in Illinois. C. Older. *Eng* & *Contr* 44:332 O 27 '15
- Concrete viaduct at San Diego. *Il* *Mun* *Eng* 49:105-6 S 15 '15
- Concrete viaduct of a new type: eastern viaduct, New York Connecting R. R. *Il* *Eng* *Eng* N 73:886-7 My 6 '15
- Concrete viaducts on the Pennsylvania railroad. D. A. Willey. *Il* *Sci* *Am* S 79:21 Ja 9 '15
- Construction features of the duplicate reinforced concrete arch bridges at Third ave., Cedar Rapids, Iowa. *Eng* & *Contr* 42:148-50 Ag 12 '14
- Construction features of the reinforced concrete cantilever bridge on Rummynode avenue, Cincinnati. *Il* *Eng* & *Contr* 43:312-13 Ap 7 '15
- Construction of the Gwynns Falls arch bridge. *Il* *Eng* *Age* 57:1037-40 11 4 '14
- Construction of the Hindustan cut-off, B. L. & W. R. R.; Tunkhannock viaduct and Martin's Creek viaduct. *Il* *Eng* *Ry* *Il* 56:143-8 Ja 30 '15
- Construction of the Twelfth street traffic way viaduct, Kansas City, Mo. E. E. Howard. *Eng* plan *Eng* & *Contr* 44:333-34 O 27 '15
- Contractors to replace \$20,000 worth of concrete bridge work. J. H. Anne. *Il* *Concrete* *Con* 7:101-6 S 15 '15
- Data on reinforced concrete railroad bridges and extent to which arch bridges are used. *Eng* plan *Eng* & *Contr* 43:29-32 Ja 13 '15
- Design and construction of a reinforced concrete truss bridge with lateral connected alignment, near Methven, Wale. C. E. Howell. *Eng* *Eng* & *Contr* 44:333-34 O 27 '15
- Design and construction of physical high way bridge at Mezzera, Italy. A. M. Wolf. *Eng* *Concrete* *Con* 6:291-6 Je 15 '15
- Design and construction of the Lawrence viaduct, Chap Arrow R. R., Lawrence, Switzerland. A. M. Wolfe. *Il* *Eng*. *Concrete* *Con* 6:291-6 My 15 '15
- Design and construction of the Lutz Anderson bridge over the Charles river, Cambridge and Boston, Mass. *Il* plans. *Eng* & *Contr* 42:331-8 O 7 '14
- Design and construction of the Main street reinforced concrete viaduct at Fort Worth, Tex. S. W. Thaw. *Eng* *Eng* & *Contr* 43:211-17 Mr 10 '15
- Design and construction of the San Jacinto street reinforced concrete bridge, Houston, Texas. *Il* *Eng* *Eng* & *Contr* 43:212-3 N 25 '14
- Design, construction and detailed costs of a reinforced concrete arch bridge over Red Cedar river, Michigan. R. A. South. *Il* *Eng* *Eng* & *Contr* 44:333-34 O 27 '15
- Design, construction and detailed costs of the McKinley road bridge, La Salle county, Ill. *Il* *Eng* *Eng* & *Contr* 43:129-32 2 24 '15
- Design features of the Alsea bridge, Columbia, Ohio on 1,166 ft. reinforced concrete structure. *Eng* *Eng* & *Contr* 44:296-9 O 15 '15
- Design of concrete highway bridges with special reference to standardization. C. H. McCullough. *Eng* *Eng* & *Contr* 43:268-70 Mr 21 '15
- Design of the reinforced concrete cantilever bridge on Rummynode avenue, Cincinnati. *Eng* *Eng* & *Contr* 43:312-13 Mr 21 '15
- Erecting reinforced concrete trestles. E. M. Orline. *Il* *Eng* *Age* 58:1000 My 21 '15
- Fullway viaduct in Baltimore built on sharp curve with concrete from 2nd foot tower. *Il* *Eng* *Rec* 71:514-6 My 1 '15
- Just concreting on Brooklyn Brighton viaduct, Cleveland. *Il* *Eng* *Eng* N 74:151-6 N 9 '15
- Features of the Tunkhannock creek viaduct recently completed at Nicholson, Pa. *Il* *Eng* & *Contr* 44:333-34 N 17 '15

Bridges, Concrete.—Continued

Five bridges erected in two days; unit system of reinforced concrete solves time element. *Eng Rec* 71:172-4 F 6 '15; Same cond. *Eng M* 49:109-11 Ap '15

Flat-slab bridges at Denver combine permanency and good appearance. W. H. Wheeler and C. A. P. Turner. *Eng Rec* 72:38-40 J1 10 '15

Forms built before supporting falsework for concrete bridge. L. C. Hardman. *Eng Rec* 72:492 O 10 '15

Haights Run bridge erected for city of Pittsburgh. *Eng Rec* 72:44 D 14

Half-mile concrete viaduct provides double-deck trafficway in Kansas City. H. H. Fox. *Eng Rec* 71:164-6 F 6 '15

Handling steel centers for concrete arches. H. H. Ketchum. *Eng Rec* 74:162-3 S 2 '15

Lopple street viaduct, Cincinnati. *Eng Rec* 73:179-83 Ag 5 '15

Light ornamental bridge, Abington, Mass. *Eng Rec* 74:97 J1 16 '15

Low-water bridges over torrential streams, Boxir co., Texas. T. Bartlett. *Eng Rec* 73:628-30 Ap 1 '15

Methods and costs in constructing the 450-ft. East Fourth street viaduct at Fort Worth, Texas. M. W. Robinson. *Eng Rec* 73:628-30 Ap 1 '15

New concrete arch viaduct of the Philadelphia, Baltimore & Washington R. R. over Gwynns Falls, Baltimore. *Eng Rec* 73:628-30 Ap 1 '15

Ornamental and cheap concrete bridge, Canton City, Colo. R. C. Hardman. *Eng Rec* 71:241-2 Ag 5 '15

Ornamental bridge at Akron built of slag concrete. *Eng Rec* 74:769-70 O 21 '15

Ornamental concrete elevated railway, New York city. M. B. Griset. *Eng Rec* 74:913-18 N 11 '15

Pennsylvania's concrete bridge over the Susquehanna. *Eng Rec* 71:326 Mr 13 '15

Progress on Summit cut-off of the Lackawanna. *Eng Rec* 74:235-9 F 5 '15

Reinforced-concrete arch bridge has stone facing. *Eng Rec* 72:164-5 Ag 7 '15

Reinforced-concrete bridge with cantilever abutments; overhead crossing at Hallstead, Pa. *Eng Rec* 70:622-3 D 5 '14

Reinforced concrete bridges. *Ry Age* 59:761-2 O 22 '15

Reinforced concrete bridges along the Columbia highway in Oregon. R. P. Hillner. *Eng Rec* 73:1145-8 D 10 '14

Reinforced-concrete cantilever bridges. A. B. Hill. *Eng Rec* 73:790-2 Ap 22 '15

Reinforced-concrete highway arch for grade separation. *Eng Rec* 73:703-1 D 26 '14

Reinforced-concrete sewer viaduct. E. P. Hillner. *Eng Rec* 73:1191 Je 17 '15

Reinforced-concrete viaduct at St. Louis, Mo. C. W. Martin. *Eng Rec* 74:726-7 O 14 '15

San Francisco Mission street viaduct. A. J. Cleary. *Eng Rec* 73:319-20 F 18 '15

Surface treatment of concrete bridges for highway and highway traffic. A. M. Wolf. *Eng Rec* 73:169-75 Ap '15

Test of full-size reinforced-concrete bridge slab. *Eng Rec* 71:26 Ja 2 '15

Tests of reinforced concrete structures on the Great Central railway; abstract. J. B. Hall. *Am Soc M E* 37:122-3 F 6 '15

Track depression at Mutton; Illinois Central R. R. *Eng Rec* 71:110-12 J1 15 '15

Track depression at Minneapolis. *Eng Rec* 73:516-17 Mr 18 '15

Tunkhannock viaduct nearing completion. *Eng Rec* 72:42-3 J1 10 '15

Twelfth street double-deck viaduct at Kansas City. *Eng Rec* 73:16-15 Ja 7 '15

Unit-construction system applied to a three-mile concrete viaduct to reduce the cost. *Eng Rec* 72:218-51 Apr 28 '15

See also Trestles, Concrete

Patents

Six concrete-bridge patents void on broad grounds. R. M. Lewis. *Eng Rec* 74:1094-5 D 2 '15

Bridges, Iron and steel

Allowing for impact in bridge calculations. J. D. W. Ball. *Eng Rec* 120:161-3 Ag 13 '15

Alloy steels economical for long-span bridges. J. A. L. Waddell. *Eng Rec* 72:386-7 S 25 '15

Comparison of carbon steel and high-alloy steels for bridges. J. A. L. Waddell. *Eng & Contr* 41:686-88; Discussion. 41:688-90; 42:243-4, 496-6 Je 17, S 9, N 25 '14

Design of the main shoes of the new Quebec bridge. *Eng Rec* 118:527-8 D 4 '14

Details of main span of Detroit-Superior bridge at Cleveland. *Eng Rec* 70:640-1 D 12 '14

Deterioration of steel bridges over railway tracks at Buffalo, R. J. Roldpath. *Eng Rec* 73:1111-7 Je 10 '15

Development of the Sudan. *Eng Rec* 119:271-4 Mr 19 '15

Difficult grade crossing elimination in Albany, N. Y. *Eng Rec* 74:961-3 N 19 '15

Erecting the largest steel arch bridge in existence, Hell Gate, New York. *Eng Rec* 113:193 S 4 '15

Erection at Hell Gate arch checks calculations. *Eng Rec* 72:220-1 Ag 21 '15

Erection of new Quebec bridge. H. P. Borden. *Eng Rec* 71:80-1 Ja 16 '15

Erection of steel arch span, Detroit-Superior viaduct. *Eng Rec* 74:366-7 Ag 19 '15

Erection of the world's greatest steel bridge at Hell Gate. *Eng Rec* 73:944-5 N 11 '15

Fabricating steelwork for the Hell Gate arch. *Eng Rec* 70:681-6 D 26 '14

Features of a unique bridge over the Bow river in Alberta, Canada. *Eng & Contr* 44:53 J1 21 '15

Harding bridge over the lower changes in India. F. C. Coleman. *Eng Rec* 73:1160-4 Je 17 '15

Hell-Gate arch bridge and the New York connecting railroad. *Eng Rec* 73:453-61 O 9 '15

Hell Gate bridge in the shop. *Eng Rec* 72:1116-18 D 3 '14

Largest arch bridge in the world; Hell Gate bridge. *Eng Rec* 113:540-1 O 16 '15

Long-span continuous truss bridge over the Ohio. *Eng Rec* 74:61-6 J1 8 '15

Longest simple truss span in world to be erected over Ohio river at Metropolis. *Eng Rec* 72:551-4 J1 10 '15; Abstract (Sillon steel for bridge construction). *Eng M* 49:913 S 4 '15

New bridge across the Mississippi river at Kookuk. *Eng Rec* 58:200 Ag 29 '15

New double-deck bridge over the Missouri river at Kansas City. *Eng Rec* 59:281 Ag 12 '15

New methods evolved in building world's largest bridge; Quebec erection. *Eng Rec* 72:96-100 J1 21 '15

977-ft. Hell Gate bridge becomes an arch. *Eng Rec* 74:708-9 O 7 '15

Notable structures on the Spokane-Ayer cut-off. *Eng Rec* 58:623-5 Mr 19 '15

Ohio river bridge for the C. B. & Q. R. R. *Eng Rec* 71:230-2 J1 29 '15

Pacific highway interstate bridge over the Columbia river and its approaches. E. B. Howard. *Eng & Contr* 43:540-3 Je 16 '15

Pacific highway interstate bridge over the Columbia river at Portland, Oregon. Good Roads 10:161-2 J1 10 '15

Pacific highway interstate bridge over the Columbia river, Portland, Ore. E. B. Howard. *Eng Rec* 73:1218-21 Je 24 '15

Pacific highway interstate bridge; special pier and floor design feature. *Eng Rec* 72:18-20 J1 3 '15

Progress of the new Quebec bridge. *Eng Rec* 119:101-3 Ja 29 '15

Progress on Hell Gate bridge, New York city. *Eng Rec* 74:236-7 J1 29 '15

Quebec bridge work in 1915. *Eng Rec* 71:473-5 S 2 '15

Recent cast-iron bridge decorations. *Eng Rec* 73:270-1 F 11 '15

Record set for weight of steel erected in one day at Randall's Island on Hell Gate bridge approach. *Eng Rec* 71:399-400 Mr 27 '15

Bridges, Iron and steel—Continued

- St. Louis municipal bridge east approach a steel viaduct nearly 3 miles long, diags Eng Rec 72:834-5 N 20 '15
- Steel arch bridge on curved gradient in the Bietsch valley, 11 diags Engineer 118:549-50 D 11 '14; Same cond. Eng M 48:760-1 F '15
- Steel bridge standards of the Iowa highway commission, J. F. Kelley, diags Eng Rec 70:631-2 D 12 '14
- Steel structural engineering, E. Marburg, Eng Rec 71:7-10 Ja 2 '15
- Three-mile approach viaduct, St. Louis municipal bridge, diags Eng N 71:454-5 S 2 '15
- Work on the new Quebec bridge during the first erection season, H. P. Borden, 11 Eng N 73:1-4 Ja 7 '15

Protection

- Gunite concrete encasement, diags Ry R 56:120-30 Ja 23 '15
- Protection of metal structures; with discussion, F. H. Kay, 11 diags Eng Soc W Pa 31:116-93 Mr '15; Abstract, Ry R 57:164 J1 31 '15
- Waterproofing solid steel-floor bridges; abstract, S. T. Wagner, Eng & Contr 13:79-81 Ja 27 '15; diags Ry R 56:273-7 F 27 '15; Discussion, A. W. Carpenter, Ry R 56:557-8 Ap 24 '15

Bridges, Lift

- Design and erection of the Pennsylvania lift bridge no. 458 over the south branch of the Chicago river, W. L. Smith and W. W. Priest, 11 diags W Soc E J 20:478-500 My '15; Same, Ry R 56:519-28 Ap 17 '15; Same cond. Eng Rec 71:611-13 My 15 '15
- Direct-lift span provides 56-foot clearance over Louisville and Portland canal, 11 Eng Rec 72:199-200 Ag 14 '15
- Erecting a lever lift bridge, 11 Eng N 74:123-1 J1 15 '15
- Lift bridge constructed on 4 per cent. grade in Fairport, N. Y., C. R. Waters, 11 Eng N 73:705-6 Ap 15 '15
- Lift spans over Arkansas river designed for possible shifting of channel, 11 diags Eng Rec 72:667-70 N 27 '15
- Pacific highway interstate bridge over the Columbia river, E. E. Howard, diags Eng N 73:218-21 Je 24 '15
- Pacific highway interstate bridge over the Columbia river and its approaches, E. E. Howard, diags Eng & Contr 13:510-3 Jo 15 '15
- Special pier and floor design feature Pacific highway interstate bridge, diags Eng Rec 72:18-20 J1 3 '15
- Two large lift bridges at Chicago, diags Engineer 120:339-40 O 8 '15

See also Bridges, Bascule

Bridges, Military. See Military bridges**Bridges, Movable. See Bridges, Bascule; Bridges, Lift; Drawbridges****Bridges, Pontoon. See Pontoon bridges****Bridges, Railroad**

- Allowing for impact in bridge calculations, J. L. W. Ball, diags Engineer 120:151-3 Ag 12 '15
- Bridge and building association, 25th annual convention, Ry Age 59:753-84 O 22 '15
- Bridge work of the C. M. & St. P. Ry, 11 plan Ry R 56:335-8 Mr 13 '15
- Building concrete caissons in the Platte river, J. H. Merriam, 11 diags Ry Age 59:383-6 Ag 27 '15
- Candian Pacific draw span over the Lachine canal, 11 Ry Age 59:230 Ag 6 '15
- Chart of equivalent uniform loads for railway bridges, D. H. Steinman, Eng N 73:780-2 Ap 22 '15
- Chesapeake & Ohio Northern railway bridge over the Ohio river at Scottdale, O., diags Eng & Contr 44:84-5 Ag 4 '15
- Completing the summit cut-off of the Lackawanna, 11 Ry Age 59:809-10 O 29 '15
- Concrete pier work on the Cumberland valley R. R. bridge over the Potomac, 11 Eng N 73:124-5 Ja 21 '15
- Concrete viaducts on the Pennsylvania railroad, D. A. Willey, 11 Sci Am N 79:24 Ja 9 '15
- Construction of the Gwyness Falls arch bridge, 11 diags Ry Age 57:1037-40 I 4 '14

- Construction of the Hallstead cut-off, D. L. & W. R. R.; Tunkhannock viaduct and Martin's Creek viaduct, 11 diags Ry R 56:143-8 Ja 30 '15
- Data on reinforced concrete railroad bridges and extent to which such bridges are used, diags plan Eng & Contr 13:29-32 Ja 13 '15
- Design and construction of the Langwies viaduct—Chur-Arosa, 11, R. Langwies, Switzerland, A. M. Wolfe, 11 diags Concrete Con 6:239-45 My '15
- Design and erection of the Pennsylvania lift bridge no. 458 over the south branch of the Chicago river, W. L. Smith and W. W. Priest, 11 diags W Soc E J 20:478-500 My '15; Same, Ry R 56:519-28 Ap 17 '15; Same cond. Eng Rec 71:611-13 My 15 '15
- Design, construction and detailed costs of the Richelieu river bridge, Lacolle Junction, Quebec, 11 diags Eng & Contr 42:512-6, 585-9 D 9, 23 '14
- Elastic curve applied to the design of the Scottdale bridge, 11, E. Steinman, Eng Rec 72:258-60 Ag 28 '15
- Erecting railroad viaduct superstructure, 11 diags Eng Rec 70:668-70 D 19 '14
- Features of the Tunkhannock creek viaduct recently completed at Nicholson, Pa., 11 Eng & Contr 44:389-90 N 17 '15
- First French bridge built in war time, W. S. Hall, 11 Ry Age 59:561 S 21 '15
- Lake Erie & Eastern R. R.; concrete arch at Mahoning avenue, Youngstown, 11 plan map Ry R 57:132-7 J1 31 '15
- Long-span continuous truss bridge over the Ohio, diags Eng N 71:611-6 J1 8 '15
- Longest riveted simple trusses erected around old bridge by cantilever method at Pittsburgh, 11 diags Eng Rec 72:321-2 J1 17 '15
- Longest simple truss span in world to be erected over Ohio river at Metropola, diags Eng Rec 72:531-2 J1 10 '15; Abstract (all-in steel for bridge construction), Eng M 19:913 S '15
- Lower Ganage bridge of the Eastern Bengal Ry, 11 Ry R 56:661-5 My 15 '15
- Metropola bridge over the Ohio river, diags Ry Age 59:160 J1 23 '15
- New bridge across the Missouri river at Ribby, Mo., 11 diags Ry Age 59:13-16 J1 2 '15
- New bridge of the Chicago, Burlington & Quincy R. R. over the Missouri river at Kansas City, Mo., diags Eng & Contr 44:119 S 1 '15
- New bridge over the Thames river, N. Y., S. H. & H. R. R. Ry R 57:682-3 N 27 '15
- New R. R. & P. structure across Allegheny river at Riverside, N. Y., 11 diags Ry Age 58:815-6 Ap 18 '15
- New Canada-New England railroad link completed; Van Buren bridge route, maps Eng Rec 71:559-60 M 1 '15
- New concrete arch viaduct of the Philadelphia, Baltimore & Washington R. R. over Gwyness Falls, Baltimore, 11 plan map Ry R 56:346-8 Mr 13 '15
- Notable structures on the Rockaway Ave cut-off, 11 diags Ry Age 59:623-6 Mr 19 '15
- Ohio river bridge for main line at Scottdale, Ohio, diags Ry Age 59:230 Ag 6 '15
- Ohio river bridge to contain large d. rated truss spans in America, diags Eng Rec 71:799-806 Jo 26 '15
- Overloads allowed in operating railroad bridges, J. E. Groener, Eng Rec 72:373-4 Jo 16 '15
- Pennsylvania's concrete bridge over the Susquehanna, diags Eng Rec 71:329-30 Mr 13 '15
- Placement of a bridge on the Boston & Maine R. R., K. W. Louncke, 11 diags Eng N 74:1067-9 I 2 '15
- Pontoon railroad bridge across the Panama canal, diags Ry R 56:821-2 Ja 16 '15
- Practical bridge erection and maintenance methods, 11 diags Ry Age 58:1067-87, 1083-117-51 My 21, 28 '15
- Rail-end connections for bascule bridges, 11 diags Eng N 73:124-5 Ja 21 '15
- Rebuilding the Muskingum bridge near Coshocton, 11 diags Eng N 74:1065-6 J1 10 '15
- Reinforced-concrete bridge with cantilever abutments; overhead crossing at Hallstead Pa., diags Eng Rec 70:622-3 I 5 '14

Bridges, Railroad—Continued

Replacing a large truss bridge by lateral movement. J. C. Bland and J. Miller. *Il Ry Age* 58:460-2 Mr 12 '15

Solid deck trestles and bridges on the Illinois Central. *Il diags Ry Age* 59:279-80 Ag 13 '15
Substructure for new Memphis bridge. M. B. Case. *Il Eng Rec* 71:513-20 Ap 24 '15; Same. *Ry Age* 58:877-81 Ap 23 '15; Same cond. *Ry* 56:554-6 Ap 24 '15; Same cond. *Eng N* 73:792-3 Ap 22 '15

Track elevation at Lynn, Mass. C. B. Broed. *Il diags plans Eng N* 74:533-7 S 16 '15

Tunkhannock viaduct nearing completion. *Il Eng Rec* 72:42-3 J1 10 '15

Viaduct construction on the Kansas City terminal. A. R. Mitzen. *Il diags Ry Age* 58:397-400 Mr 5 '15

Wind stresses in railroad bridges. R. Fleming. *Eng N* 73:252-6 F 11 '15

See also Bridges, Bascule; Elevated railroads; Pontoon bridges; Railroads—Track elevation

Bridges, Rolling lift. *See* Bridges, Bascule

Bridges, Stone

Proposed centering for large-span stone bridges. H. Berg. *diags Engineer* 119:472-4, 521-3, 569-70 My 14, 28, Jo 11 '15

Bridges, Suspension

Wooden suspension foot bridge. *Il Eng & Min J* 98:1000 D 5 '14

Bridges, Tubular

Estimate for a tubular bridge for the Mexican Ry. *Eng N* 73:405 F 25 '15

Brightness

Brightness-difference sensibility of the eye under various brightness of test-fields and surroundings. P. W. Cobb. *J Fr Inst* 180:235-7 Ag '15

Efficiency of the eye under different conditions of lighting; the effect of varying the distribution factors and intensity. C. E. Ferree and G. Rand. *Il Illum Eng Soc* 10:407-47 no 6 '15

Further experiments on the efficiency of the eye under different conditions of lighting. C. E. Ferree and G. Rand. *Il plan Illum Eng Soc* 10:448-501 no 6 '15

Good and bad in recent lighting development. J. R. Cravath. *Il Elec W* 66:519-20 S 4 '15

Methods of expressing brightness. J. R. Cravath. *Il Elec W* 64:1157-8 D 12 '14

Optical properties of diffusing media. *Illum Eng Soc* 10:353-78 no 5 '15

Planning of lighting installations. R. E. Pierce. *Il Am Gas Light J* 103:331-2 N 22 '15

Proposed unit of brightness. *Elec W* 65:715 Mr 20 '15

Rotund sensibilities related to illuminating engineering. P. C. Nutting. *J Fr Inst* 180:482-4 O '15

Unit of brightness. H. E. Ives. *Elec W* 65:460 F 20 '15

Units of brightness. J. R. Cravath. *Elec W* 66:50-1 J1 10 '15

See also Glare

Briquets

Briquets as fuel for house heating boilers. D. T. Randall. *Il Metal Work* 83:847-9 Jo 11 '15

British Portland cement making machinery; briquetting process. *Il diags Engineer* 120:148-51 Ag 13 '15

Fuel briquetting. *Collinery* 36:45 Ag '15

Recent developments in coal briquetting. C. T. Mulcockman. *Il Am Inst Min & Ind* 98:271-89 F '15; Discussion. 101:1143-7 My '15

Briquets (Iron)

Briquettes in blast-furnace practice. M. Zillgen. *Iron Age* 94:1394-5 D 17 '14

Britannia

Britannia linings for Hardinge mills. G. B. Collins. *Mot & Chem Eng* 13:650-1 O 1 '15

Britannic (steamship)

White Star liner Britannic. *Il Int Marine Eng* 19:556-9 D '14

British association for the advancement of science

85th annual meeting, Manchester, Sept. 7-11. *Power* 42:529-30 O 12 '15

Manchester meeting. *Engineer* 120:268-70, 292-3 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

British Columbia

See also Mines and mineral resources—British Columbia

Law

Acquiring placer-mining claims in British Columbia. J. A. Macdonald. *diag Eng & Min J* 100:757-9 N 6 '15

British engineers' association

3d meeting, Manchester. *Engineer* 118:578-9 D 18 '14

Broaching

Broaching connecting-rods. *Il Mach* 21:482 F '15

Broaching operation done in the punch press. F. K. Hudson. *diags Mach* 21:493-4 F '15

75-ton self-contained hydraulic broaching and forcing press. *Il Ind Eng* 14:401 O '14

Bromal

Action of chloral bromal and benzaldehyde on the polycyclic hydrocarbons in the presence of aluminum chloride. G. B. Frankforter and W. Kritchewsky. *Am Chem Soc J* 37:385-92 F '15

Bromides

Detection of bromides in the presence of thiocyanates, cyanides and ferrocyanides. L. J. Curtman and A. G. Wikoff. *Am Chem Soc J* 37:298-301 F '15

Bromacetates

Salts of the halogenoacetic acids. W. G. Bateman and R. B. Conrad. *Am Chem Soc J* 37:2553-60 N '15

Bronze

Applications of metallic cobalt: experiments conducted with cobalt and copper alloys. D. B. Browne. *Metal Ind n* 12:509-10 D '14

Art of casting from life. W. Bilz. *Il Metal Ind n* 8:1333-4 Ag '15

Brass and bronze offsprings of copper. J. E. Schipper. *Il map Automobile* 33:315-19, 368-70, 412-13 Ag 10-S 2 '15

Bronze castings as a substitute for steel parts. *Mot & Chem Eng* 13:103-4 Mr '15

Composition of manganese bronze. *Foundry* 43:315 Ag '15

Flexible bronze tubing of the Partridge Island pipe line. *Il diag map Eng N* 73:1167-8 Jo 17 '15

How titanium-aluminum bronze is produced. C. Vickers. *Il Foundry* 43:273-8 J1 '15

Manganese-bronze. J. B. Rhodes. *Metal Ind n* 8:13462 N '15

Manufacture and uses of wrought manganese bronze. J. L. Jones. *Metal Ind n* 8:13410-12 O '15

Microstructural changes accompanying the annealing of bronze. H. S. Rawdon. *J Fr Inst* 180:607-8 N '15

Properties of aluminum bronze alloys. W. M. Corse. *Il Foundry* 43:459-60 N '15

Specifications for government bronze. *diags Foundry* 43:260 J1 '15; Same. *Metal Ind n* 8:13273 J1 '15

Status of the bronze troubles on the Catskill aqueduct. A. D. Elmer. *Eng N* 74:572 S 16 '15

Titan bronze. *Il Mot & Chem Eng* 13:645-6 S 15 '15

Titanium aluminum bronze. W. M. Corse and C. Vickers. *Metal Ind n* 8:13190-1 My '15

Titanium-aluminum bronze castings. W. M. Corse. *Mot & Chem Eng* 13:511-12 Ag '15

What is phosphor-bronze? *Foundry* 43:69-70 F '15

Bronzes

Bronze in history-making: an ancient figured bronze door reveals the aerial-navigation engineering of antiquity. L. Loeb. *Il Metal Ind n* 8:1351-3 F '15

Molding and casting a bronze monument. W. N. Nelly. *Il Metal Ind n* 8:1333-4 Mr '15

Bronzing

Bronzing processes suitable for brass and copper. T. I. Baker. *Metal Ind n* 8:13464-5 N '15 (to be cont)

Brooklyn, New York**Rapid transit**

Brooklyn rapid transit. *Ry Age* 59:223-4 Ag 6 '15

Traffic congestion problem. W. H. Messenger. *Il Mach* 21:482 F '15

Brooklyn, New York—Continued**Sanitary affairs**

Experimental plant for treating sewage. G: T. Hammond. *Il Munic Eng* 47:427-30 D '14

Water supply

Works for the collection of a ground water supply at Brooklyn. W: F. Lause. *Eng & Contr* 44:225 S 22 '15

Brooklyn bridge

Six etchings of Brooklyn bridge, by H. De Ville; text by M. Stapley. *Arch Rec* 38:583-91 N '15

Brooklyn children's museum

Children's museum. *Sci Am* 112:250 Mr 13 '15

Brooklyn rapid transit company

Annual report. *Ity Age* 59:259-62 Ag 6 '15
Commission report of service—company's reply. *Ellec Ry J* 45:108-9 Ja 9 '15
Modern railway school. *Il plans* *Ellec Ity J* 46:344-53 Ag 28 '15

Brooms

Manufacturing brooms. B. N. Lewis. *Il Ity Age* (Mech ed) 89:407-8 Ag '15

Brownian movements

Motion films of molecular movements. *Il Ellec W* 66:708 N 25 '15

Brushes (electric machinery)

Brush-holder practice for single-phase motors. R. R. Potter. *Il diag Ellec Ry J* 46:408-9 N 4 '15

Graphite brushes. *Colliery* 36:167-8 O '15

Preventing burning of the top of brushes. R. H. Parsons. *diag Ellec Ity J* 46:917-18 O 30 '15

Schweitzer multiplex brush for commutators and collector rings. *Il Ellec R & W Ellec'n* 67:382 Ag 28 '15

Troubles encountered in the operation of carbon brushes in direct-current generators and motors. B. H. Martindale. *Il Am Inst E E* Pro 34:373-84 Mr '15; Same cond. *Power* 41:558-9 Ap 20 '15; Same cond. *Engineer* 119:468-9 My 7 '15; Same cond. (Causes of poor commutation and remedies). *Ellec W* 65:863-4 Ap 3 '15; Discussion. *Am Inst E E* Pro 34:2966-74 D '15

Bubbling fountains. See Drinking fountains**Buckets**

Throw-out—Shimable patent drag-line bucket. *Il Ry It* 57:249-50 Ar 21 '15; *Eng & Contr* 43:580-1 Je 30 '15; *Ity Age* 59:125-6 J 16 '15

Dippers for steam shovels and dredges. *Eng N* 73:80 Ja 14 '15

N. P. pump bucket. *Engineer* 118:506 N 27 '14

Buckeye-mobile. See Locomobiles**Budgets**

Annual budget. W: T. Childs. *Munic J* 39:515-7 O 7 '15

Initial budget making. *Munic J* 39:695 7 N 4 '15

Buenos Aires

Water supply and drainage in Argentina. A. Dale. *Il Metal Work* 84:103-6 J 23 '15

Buffalo, New York**Bridges**

Design and construction of the substructure of the Buffalo river lift bridge. *Il diag Eng & Contr* 44:382-5 N 10 '15

Deterioration of steel bridges over railway tracks at Buffalo. R. J. Reidpath. *Il diag Eng N* 73:144-7 Je 10 '15

Industries and resources

Buffalo and Niagara Falls and their industries. *Il Am Soc M E J* 37:vi-x My '15

Railroads

Lackawanna passenger terminal at Buffalo. *map Eng Rec* 71:334-6 Mr 13 '15

Proposed passenger terminals at Buffalo. *Il plan Ry It* 56:338-40 Mr 13 '15

Rapid transit

Buffalo's railway facilities; sketch of past and present conditions. R. J. Dickson. *Ellec Ry J* 45:135-6 Ja 16 '15

Sanitary affairs

Buffalo sewage disposal and water-supply in relation to the pollution of the Great Lakes. *Eng N* 73:8-9 Ja 7 '15

Water supply

Use of liquid chlorine at Buffalo water-works intake. L. F. Wagner. *Il diag Eng N* 73:856-7 My 6 '15

Buffalo, Rochester & Pittsburgh railway

30th annual report. *map Ry Age* 59:310-11, 370-2 Ag 20 '15

Buffet cars

Baggage-buffet cars for the Union Pacific R. *Il diag Ity R* 56:9-10 Ja 2 '15

Café day coach. *Il Ity Age* 59:57-8 J 19 '15

Buffing. See Grinding and polishing

Builders' exchanges

Convention of National association of builders' exchanges. *Bl dg Age* 37:33-7 Mr '15
Meeting of Ohio builders' exchanges. *Bl dg Age* 37:47-9 Mr '15

Building

Building methods on the Pacific coast. *Il Bl dg Age* 37:51-60 D '15

Chicago's 1914 progress in building. *Il Bl dg Age* 37:246-8 F '15

Construction management. S. E. Thompson and W. C. Lichtner. *Il diag W Soc E J* 20:109-20 F '15; Same cond. *Eng & Contr* 43:428-32 My 12 '15; Discussion. *W Soc E J* 20:129-61 F '15

Co-operation in small building development. T. H. Bosworth. *Concrete Con* 6:12 Ja '15

Electric drive in building construction. *Il Ellec W* 65:375 Mr 13 '15

Erecting a building under a tent in winter. *Il Eng N* 73:391 F 25 '15

Fastenings for stone or steel. H. M. Schenker. *Il diag Bl dg Age* 37:39 20 F '15

Heating trade wants six inch studs. *Bl dg Age* 37:61 J 1 '15

How a large truck roof was raised. J. F. Hobart. *Il Bl dg Age* 37:36 30 My '15

Notable church remodeling operation. *Il Bl dg Age* 37:18 22 Ag '15

Panama Pacific international expedition; large-scale time limited construction problems. E. P. Leedy. *plan Iron Age* 35:78 N 1 Ja 7 '15; Same cond. *Eng N* 73:891 3 Mr '15

Planning for daylight and sunlight in buildings; with discussion. L. B. Marks and J. E. Woodwell. *Bl dg Age* 37:110-11 Mar Soc 2:613 86 no 7 '14

Profitable specialty building for an auditor for fire insurance companies. G. L. Quinn, Jr. *Bl dg Age* 37:61 2 F '15

Protection from earthquakes. T. Moens. *Sci Am* 57:800 1 F 4 '15

Remodeling a frame station building. H. H. See. *Il plan Bl dg Age* 37:13 6 Je '15

Residence construction in Indiana. J. F. Hobart. *Il plan Bl dg Age* 37:17 22 O '15

Special details in reinforced concrete and steel building construction. A. W. Truck. *Eng & Contr* 44:113 1 Ar 2 '15

See also Acoustics, Architectural, Arches, Architecture, Automobiles, Best construction, Bricklaying, Bridges, Building materials, Building stone, Building, Carpentry, Cellulose, Chimneys, China clays, Concrete construction, Cranes, Concrete, Electrician, Factories, Fibreboard construction, Floor, Foundation and, Foundations, Framing (building), Girders, Graphical, Grouting, Heating, Hot water radiators, Masonry, Office buildings, Pathways, Piers, Photo and photoduping, Plumbing, Roofs, Scaffold ing, Shoring and underpinning, Shipways, Steel construction, Stumps and stumps, Strength of materials, Tiles, Ventilation, Walls, Windows

Accounting

Accounts for material on engineering construction. L. H. Allen. *J Account* 19:342 8 M '15

Cost

Building construction costs. W. W. Chubb. *Textile World* 48:277 4 M '15

Cost of schoolhouse construction, with a proposed unit based on cubical contents. E. J. Baldwin. *Heat & Vent* 12:22 7 Je '15

Building—Cost—Continued

- Design, construction and detailed labor costs of car shops for Omaha & Council Bluffs street railway co., Omaha, Neb., W. L. Fulton, diag plans Eng & Contr 44:204-6 O 6 '15
- Estimating the cost of mill buildings, C. F. Dingman, Eng & Contr 44:185 S 8 '15
- Figures of comparative building costs. Bldg Age 37:31-2 Je '15
- Labor costs in building construction. H. W. Robinson, II diag plan Bldg Age 37:31-4 S '15
- Modern schoolhouse; culbuge and cost. W. H. Kilham, II plans Brickb 24:107-10 My '15
- Why this is the time to build. II Iron Tr R 56:511-13 Mr 11 '15
- See also Bridges—Cost; Concrete construction—Cost

Estimates

- Checking lists for estimators on building work. L. A. Waterbury, Eng & Contr 42:364-6 O 14 '14
- Quantity system of estimating. D. S. Balkentine, Bldg Age 37:41 JI '15
- Suggestions for estimating mill work. Bldg Age 37:35-6 N '15

Materials

See Building materials

Tables, calculations, etc.

- Facilitating timber design; tables and diagrams used in connection with the structural work on the New York state building, Panama-Pacific exposition, S. Diamant, Eng Rec 71:206-7 Mr 6 '15
- Tables for determining the bending moments and shears in simple beams and in beams fixed at one and both ends. S. M. Cotten, Eng & Contr 43:335-40 Ap 11 '15

India

- British India; building construction. II S Sp Cons Rep 72:169-75 '15
- Building a genuine Indian bungalow. A. R. Smith-Roy, Bldg Age 37:65-6 Jo '15

Building contracts

- Arbitration provision for building contracts. H. T. Thurston, Eng & Contr 43:199 Mr 3 '15
- Change of site does not affect contract. W. B. King, Eng Rec 71:332 Mr 13 '15
- Controlling written agreements. A. L. II, Street, Bldg Age 37:45-6 Jo '15
- Discussion of some legal principles of interest to engineers. W. L. Bowman, Eng & Contr 42:552-3 J 16 '14
- Does millwork include glass? A. L. II, Street, Bldg Age 37:22 Ja '15
- How courts read building contracts. A. L. II, Street, Bldg Age 37:63-4 JI '15
- Important legal decisions in 1914. A. L. II, Street, Bldg Age 37:49-50 F '15
- Law points in building contracts. A. L. II, Street, Bldg Age 37:51-2 Ag '15
- New form of government contract. R. D. Meou, Eng N 74:109 JI 15 '15
- New standard documents. W. S. Parker, Am Inst Arch J 3:300-3, 346-51, 388-92, 439-43 JI-O '15
- Problem of extras. Concrete Cem 5:255 I '14
- Should details be furnished before a contract is signed? C. A. Wright, Bldg Age 37:66 N '15
- Standard documents of the American Institute of architects; with forms. Am Inst Arch J 3:supl-7 F '15

See also Bridge contracts

Building data league

- Organization. Eng W 66:30 JI 3 '15; Heat & Ven 12:33 JI '15; Eng N 74:281 Ag 5 '15

Building failures

- Unriveted steelwork collapses in Toledo gale. II Eng Rec 71:507-8 Ap 17 '15

See also Bridge failures; Concrete construction—Failures; Dam failures

Building laws

- Architects as independent contractors. A. L. II, Street, Bldg Age 37:54-5 N '15
- Architects versus engineers; Illinois engineers win fight for legal recognition. Assn Eng Soc J 54:277-80 Jo '15

Building-area, height and other limitations to

- use of private city property compiled. N. P. Lewis, Eng Rec 72:597-8 N 13 '15
- Building code regulation of concrete block and other building units. H. Whipple, Concrete Cem 5:181-4 Ap '15
- Chicago flat-slab ordinance; discussion. Eng N 73:174-7 D 24 '14
- Cleveland bases stairway regulations on studies. Eng Rec 72:260 Ag 28 '15
- Community stupidity; how real-estate promotion creates congestion and reduces values. F. L. Ackerman, plans Am Inst Arch J 3:193-7 My '15
- Discussion of the Indiana housing law. A. F. Wickes, Am Inst Arch J 3:187-3 Ap '15
- Enforcement of Wisconsin building code. Eng Rec 70:626 D 6 '14
- How Cleveland fixes sizes of courts and yards. plan Eng Rec 71:614 My 15 '15
- New ruling on reinforced concrete flat slab construction by building department of Chicago. Eng & Contr 42:330 O 7 '14
- New York's revised building code. Bldg Age 37:31-2 Ag; 59-60 O '15
- Ordinance on fire safeguards. Eng N 74:429-30 Ag 26 '15
- Planning for daylight and sunlight in buildings with table of building height limits. L. B. Marks and J. B. Woodwell, Illum Eng Soc 9:615-7, 667 no 7 '14
- Proposed state building code for Illinois. Eng & Contr 42:451 N 11 '14
- Regulation of concrete block manufacture and use. Concrete Cem 5:208-9 Ap '15
- Resumé of plumbing requirements of New York, Chicago, Philadelphia, and Boston. C. A. Whittemore, Brickb 21:197-200 Ag '15
- Shingle roofs and fire limits. W. B. Conant, Munic J 38:189-90 F 11 '15
- Theory and practice in writing building laws. J. A. Ferguson, Eng Soc W 1'n 30:130-66 Mr '14; Abstracts, Eng & Contr 42:222-5, 265-6 S 2, 16 '14; Discussion, Eng Soc W 1'n 30:166-90 Mr '14
- Wind-bracing requirements in municipal building codes. II Fleming, Eng N 73:485-7 Mr 11 '15

See also Fireproof construction; Garages—Laws and regulations; Heating—Laws and regulations; Plumbing laws and regulations

Building materials

- Air permeability of building materials; abstracts. II, von Tholmann, Am Soc M 16 J 37:477-8 Ag '15; Heat & Ven 12:34-5 S '15
- American society for testing materials holds annual meeting in Atlantic City. Eng Rec 72:28-9 JI 3 '15
- Establishment of a standard for transmission losses from buildings of all constructions. H. P. Bolton, Heat & Ven 12:19-23 JI '15; Same, Dom Eng 73:264-6 N 27 '15; Same, cond. Metal Work 84:373-4 S 17 '15
- Heat losses by transmission through various building materials. L. A. Harding, Am Soc Heat & V 19:208-18 '13
- Laboratory freezing tests. H. Perrine, diag Concrete Cem 5:256-7 I '14

See also Asbestos; Bricks; Building stones; Cement; Concrete; Concrete, Reinforced; Concrete blocks; Concrete bricks; Concrete stone; Fire resisting materials; Fireproof construction; Glass; Hollow tile; Iron; Lime; Mortar; Plaster and plastering; Sheet metal; Steel, Structural; Strength of materials; Stucco; Tiles; Timber; Wood

Building moving

- Fifteen hundred-ton country club moved 1200 feet. II Eng Rec 71:694 My 29 '15
- Planting a clubhouse to a new site. II Eng N 73:589-90 Mr 25 '15
- Heavy car dumping plant moved 214 feet in 2½ days. II Eng Rec 71:49 Ja 9 '15
- Large steel tanks cut in two for removal on barge. II Eng Rec 71:278 F 27 '15
- Moving large steel grain tanks. II Sci Am 113:185 Ag 28 '15
- Moving reinforced-concrete hotel in San Francisco. A. D. Phares, II Eng Rec 71:289-90 Mr 6 '15
- Notable church remodeling operation. II Bldg Age 37:19-22 Ag '15
- See also Bridge moving

Building stones

Stone production in the United States, 1901-1913. *Eng Rec* 70:642 D 12 '14

Testing of building stone in Canada. *Engineer* 120:18 J1 2 '15

See also Limestone

Building trades

Building operations in 1914. *Bldg Age* 37:37 O '15

Changes in the building business. M. C. Tuttle. *Eng N* 73:1034-5 My 27 '15

Making the building business profitable. *Bldg Age* 37:22, 24 Ap '15

Review of building situation in 1914. *Bldg Age* 37:77-8 F '15

Should the builder carry a stock? G. D. Crain, Jr. *Il Bldg Age* 37:57-8 Ap '15

Buildings

Buildings-factor costs. H. L. Green. *Eng M* 48:407-10 D '14; Same. *Eng & Contr* 43:101-2 F 3 '15

Electrical construction details of Butler brothers building, Chicago. N. G. Meade. *Il dings Elec It & W Elec'n* 66:1183-90 Je 26 '15

Hill building; special design for special use. *Il dings plans Eng N* 73:1241-8 D 24 '14

See also Association buildings; Bank buildings; College buildings; Engineering buildings; Factories; Hotels; Industrial buildings; Market buildings; Municipal buildings; Office buildings; Printing offices; Railroads—Buildings; Schoolhouses; Theaters; Warehouses

Cleaning

Removing stains from stonework. *Bldg Age* 37:41 My '15

Repair

Preliminary repair work on the Edison concrete buildings. *Il dings Eng N* 73:89-91 Ja 14 '15

Rebuilding Edison's great plant. *Sci Am* 112:60 Ja 9 '15

Reinforcement for the roof timbers of Westminster Hall, England. F. Palmer. *Eng & Contr* 42:172-5 Ag 19 '14

Repair of concrete buildings at Edison plant sets precedents in construction work. *Il dings Eng Rec* 71:503-6 Ap 17 '15

Repairing building supports and foundations with concrete. *Il Concrete Com* 6:45-6 Ja '15

Restoration of old buildings. W. A. Forsyth. *Eng & Contr* 44:310 O 20 '15

Buildings, Industrial. See Industrial buildings**Buildings, Portable**

Construction of a movable greenhouse. *Il Bldg Age* 37:69-71 Ag '15

Portable buildings of monolithic reinforced concrete. *Il Eng N* 73:1255 D 21 '14

Bulkheads

Bulkhead to retain soft fill. *diag Eng N* 73:942-3 My 13 '15

Design suggested for shore-protection works on the New Jersey coast. B. F. Crossman, Jr. *diag Eng N* 73:904-5 My 6 '15; *Eng Rec* 71:647-8 My 1 '15

Hunt's Point terminal in New York involves difficult bulkhead construction. *Il dings map Eng Rec* 72:104-6 J1 24 '15

Movable bulkhead for testing steel pipe line in sections after erection. *diag Eng & Contr* 44:317 O 20 '15

New coal dock for the Cincinnati Hamilton & Dayton Ry. at Toledo; plan. *Ry R* 57:237 Ag 21 '15; Same. *Eng Rec* 72:163 Ag 7 '15

Novel bulkhead for wharves at Jacksonville. H. D. McDonnell. *diag map Eng N* 74:772-4 O 21 '15

Special features in the new intake tunnel at Milwaukee. L. G. Warren. *diag Eng N* 73:686-7 Ap 8 '15

Steamship terminal in the Bronx. *Il diag maps Sci Am* 112:80-1 Ja 23 '15

Bulkheads, Mine. See Mine bulkheads**Bulkheads (naval architecture). See Naval architecture****Bullets**

Bullets of the fighting nations. *Il Sci Am* 112:400-1 My 1 '15

Dum-dum bullets. E. C. Crossman. *Il Sci Am* 112:368 Ap 17 '15

High-speed bullets and dumdums. *Sci Am S* 79:304 My 8 '15

How rifle bullets fly. E. C. Crossman. *Il Sci Am* 112:344-5 J1 3 '15

Making shrapnel bullets. *Mach* 21:649-50 Ap 15; Same. *Sci Am S* 80:30 J1 16 '15

Penetration of bullets. E. C. Crossman. *Il Sci Am* 112:404-5 N 6 '15

Title and its bullet. H. L. Housner. *Il dings Sci Am S* 80:268-9 O 23 '15

See also Projectiles; Shells; Shrapnel shells

Bumped heads. See Boiler heads**Bumping blocks**

Bumping posts that do the work demanded. *diag Eng Rec* 72:474 O 16 '15

High concrete bumping blocks; B. & O. R. R. *diag Eng N* 73:619 Ap 1 '15

Bungalows

Building a genuine Indian bungalow. A. R. Sarath-Roy. *Bldg Age* 37:85-6 Je '15

Bungalow costing \$1000. *Il dings plans Bldg Age* 37:37-30 Ja '15

Bungalow of the California type. *Il plan Bldg Age* 37:53-4 D '15

Hints for the building of bungalow. J. G. Demsey. *plans Bldg Age* 37:52-4 S '15

Low-cost hollow the bungalows. *Il dings plans Bldg Age* 37:31-6 D '15

Plumbing and heating in California bungalow. A. C. Shaver. *Il plan Metal Work* 33:166-7 F Mr 26 '15

Popular bungalow-court idea; layout and description of St. Francis court at Pasadena. C. A. Byers. *Il dings plans Bldg Age* 37:19-23 Ap '15

Southern home of bungalow type. *Il dings plans Bldg Age* 37:19-23 J1 '15

Summer cottage in the Maine woods. C. A. Byers. *Il plans Bldg Age* 37:19 22 Je '15

Bunsen burners

Distribution of gases in the bunsen flame. *Sci Am* 112:470 My 22 '15

Buoys

Lighthouse illumination. R. Haskell. *Ilum Eng Soc* 10:215-17 no 3 '15

Buret reader

Simple buret reader. L. S. Pratt. *diag Am Chem Soc J* 37:1730-1 J1 '15

Burets

Simple automatic zero burette. A. T. Mertes. *diag J Ind & Eng Chem* 7:786 7 S '15

Burke relief foundation, White Plains, N. Y.

Burke foundation for convalescents. White Plains, N. Y. *Il Arch & Bldg* 17:317 23 S '15

Winifred Macomber Burke relief foundation, White Plains, N. Y.; views and plans. *Brick* 24:pl 91-6 J1 '15

Burma

See also Railroads—Burma

Industries and resources

Bawdwin mines of the Burma corporation. *Il map plan Eng & Min J* 99:177 80 Ja 23 '15

Wolframite in lower Burma. E. M. Leffroy. *Eng & Min J* 99:654 Ap 17 '15

Burners

Adjustable burner for liquid fuel. *diag Am Soc M E J* 37:118-19 F '15

Crude oil as fuel in heating systems. H. S. Hakey. *diag Dom Eng* 70:161 6, 139-41 Ja 25-30 '15

See also Bunsen burners; Gas burners; Oil burners

Burnham, Daniel Hudson, d. 1912

Burnham as a pioneer in city planning. W. E. Parsons. *Il plans Arch Rec* 35:13-31 J1 '15

Daniel Hudson Burnham and his associates. P. H. Wright. *Il per Arch Rec* 35:1 12 J1 '15

Work of Burnham & Root. P. H. Burnham. L. H. Burnham & co. and Graham, Burnham & co. A. N. Robert. *Il plans Arch Rec* 35:32-168 J1 '15

Burroughs adding machine co.

Workmen's co-operation reduces accidents. *Il Iron Age* 95:1051-4 My 13 '15

Busbar supports

Hangers and wall bushings for storage-battery busbars. *diag Elec W* 66:1206 N 27 '15

Busbar supports—Continued

Improved disconnecting switches and busbar supports for large generating plants. *Ellec R & W Elec'n* 67:728-31 O 16 '15; *Ellec W* 66:883-4 O 16 '15
 Special three-way busbar supports. *El diag Ellec R & W Elec'n* 66:358 F 20 '15

Buses, Electric. See *Electric buses*

Buses, Jitney. See *Jitney buses*

Buses, Motor. See *Motor buses*

Bushings

Machining bushings on the drill press. *W. H. Sawtell. El diag Mach* 21:1012 Ag '15
 Machining thin bronze bushings. *A. A. Dowd. diag Mach* 21:980-2 Ag '15
 Mushroom gates and risers. *Foundry* 43:69 F '15

Bushman

Bushman of the Moori river, Natal. *D. Waterston. El Sci Am* 112:191 F 27 '15

Business

Address before the A. M. R. A. W. Wilson. *Ellec Rty J* 45:275-8 F 6 '15; Same cond. *Ellec W* 65:368-9 F 6 '15; Abstract. *Ellec Rty J* 45:217-18 Ja 30 '15

Better business building blocks. *G. R. Adams. Dom Eng* 73:105-7, 143-4 O 23-30 '15; Same cond. *Metal Work* 84:533-5 O 23 '15

Business man and Congress. *L. W. Moffett. Iron Tr R* 55:1229-30 I 31 '14

Business questions considered, by the Chamber of commerce of the United States. *Iron Age* 95:354-5 F 11 '15

Destructive and constructive regulation of business. *R. R. Lounsbury. Am Ind* 16:10-13 Ag '15

Modern commercial distribution. *Am Gas Light J* 103:135, 138-9 Ag 30 '15

Money and time saving recording systems; rendering of trade journals and books. *R. T. Gebler. Metal Work* 84:300-2 S 3 '15

Organized business methods needed. *J. H. Fahey. Metal Work* 84:43 J 9 '15

Small corporation a pitfall. *J. R. Smith. Eng M* 49:672-8 Ag '15

Value of friendship in business. *E. A. Roberts. Illig Age* 37:35 Ag '15

See also *Accounting; Advertising; Auditing; Business conditions; Business depression; Card system in business; Commerce; Competition; Corporations; Credit; Department stores; Export trade; Mail order business; Manufacturers; Merchants; Office management; Panics; Purchasing; Salesmen and salesmanship; Scientific management; Show windows*

Business cards

Business-cards a few suggestions. *J. L. Frazier. Inland Pr* 56:65-8 O '15

Business conditions

Address delivered before the Youngstown chamber of commerce. *T. W. Robinson. Iron Tr R* 56:934-6a My 6 '15; Same cond. (Road to better business conditions) *Iron Age* 95:1000-1 My 6 '15

Better business conditions and permanent prosperity. *Rty R* 57:598-9 N 6 '15

Business conditions; abstracts. *E. H. Gary. Iron Age* 95:1240-2 Jo 3 '15; *Iron Tr R* 56:1119-21 Je 3 '15

Business from manufacturers' standpoint in middle West. *Metal Work* 83:71-3 Ja 1 '15
 Foreign and domestic commerce and business generally. *J. A. Farrell. Eng Soc W* 1'n 31:223-8 Mr '15

Has the tide turned? *R. W. Babson. Brickb* 23:311-12 I 14

How is business? comment by manufacturers. *Ellec R & W Elec'n* 67:413-16 S 4 '15

Outlook in other industries; comment by editors of various trade publications. *Ellec R & W Elec'n* 67:417-27 S 4 '15

Railways and prosperity. *A. L. Mohler. Rty R* 56:181-2 F 6 '15

Sane optimism. *C. M. Lempory. Metal Work* 82:781 I 11 '14

Supply manufacturers and dealers meet. *Iron Age* 95:1290-3 Jo 10 '15

See also *Business depression*

Business correspondence. See *Commercial correspondence*

Business depression

Letters of Messrs. Tripp and Matthews on business conditions. *W. F. Hickernell. Ellec W* 65:972-3 Ap 17 '15

Present industrial depression. *G. E. Tripp. Ellec W* 65:11-12 Ja 3 '15; Discussion. *C. L. Matthews; C. E. Tripp. Ellec W* 65:517-18 F 27 '15

See also *Panics*

Business education

Business college graduate in the business field. *J. P. Joplin. J Account* 19:182-90 Mr '15

Business ethics

See also *Competition*

Business law. See *Commercial law*

Business men

Administration and business men. *L. Cromwell. Textile World* 49:240-2 My '15

Business men and public service. *Ry R* 55:688-90, 710-18, 775-7; 56:93-6, 127-9, 193-4, 207-8 I 5-12, 26 '14, Ja 16-23, F 6-13 '15

Government's business. It needs regulation by business men. *Ry R* 55:746-8 D 19 '14

Butane

Vapor pressures of propane, propylene and normal butane at low temperatures. *G. A. Burrell and L. W. Robertson. Am Chem Soc J* 37:2188-93 S '15

Butchart rifle system

Development of the Butchart rifle system at Morenci, D.; Cole. *El diag Am Inst Min E* 13ul 98:131-41 F '15; Excerpt. *Metal & Chem Eng* 13:332 My '15; Discussion. *Am Inst Min E* 13ul 101:1123-8 My '15

Butler brothers, Chicago

Electrical construction details of Butler brothers building. *N. G. Mende. El diag Ellec R & W Elec'n* 66:1183-90 Jo 26 '15

Butte, Montana

Occurrence of covellite at Butte. *A. P. Thompson. El Am Inst Min E* 13ul 100:645-77 Ap '15; Discussion. 108:2464-71 I '15

Butte, Anaconda & Pacific railway

Contact system of the Butte, Anaconda & Pacific railway. *J. B. Cox. El diag map Am Inst* 13 I 10 Pro 34:1447-70 Ag '15; Same. *Gen Ellec R* 18:812-59 Ag '15; Abstract. *Ellec Rty J* 45:50-60 JI 10 '15

Electrical operation of the Butte, Anaconda & Pacific railway. *J. B. Cox. El maps Am Inst* 13 I 10 Pro 33:1729-53 N '14; Same. *Gen Ellec R* 17:1047-65 N '14; Abstract. *Ellec Rty J* 44:1050-1 N 7 '14; Discussion. *Am Inst* 13 I 10 Pro 34:134-43 Ja '15

One year's electrical operation of the B. A. & P. *J. B. Cox. Rty Age* 67:1193-5 I 25 '14
 Results of B. A. & P. railway electrification. *Eng & Min J* 99:529-30 Mr 29 '15

Butte & Superior copper co.

Report for 1914. *Eng & Min J* 99:1081 Je 19 '15

Butter, Substitutes for

Modern substitutes for butter. *Sci Am* 8 80:27 JI 10 '16

Butter fat

Apparent effect of acetic acid upon the constituents of butter fat. *C. Dahlman. J Ind & Eng Chem* 7:680-1 Ag '15

Determination of fat in ice cream by the Babcock method. *C. A. A. Pitt. J Ind & Eng Chem* 7:773 S '15

Device for the successive determination of the solids and fat in milk and other fluids. *A. Seidenberg. J Ind & Eng Chem* 7:769-73 S '15

Butternut

Butternut trees as a wood radiator. *Sci Am* 112:130 F 6 '15

Use of native woods for interior finish. *C. M. Price. El Brickb* 24:241-2 O '15

Buying. See *Purchasing*

C

Cabinet. See *United States—Cabinet*

Cabinet work

Cabinet work for the carpenter. *P. D. Otter. diag Illig Age* 37:49-50 N '15

See also *Furniture; Sewing cabinets*

Cable-laying plow. *II Elec W* 65:41 Ja 2 '15

Cable railroads

Two-car trains on 25 per cent grade. *diags Elec Ry J* 45:977-8 May 22 '15

Cables

Mechanical cable connectors. *II Elec Ry J* 45:1216-17 Je 26 '15

New grips for cables and wires. *II Iron Age* 96:418 Ag 19 '15

Service and tests of Mayari incline cables; abstract. *J. E. Litlco. Am Soc M E J* 37:236-7 Ap '15

Service and tests of 3-in. wire cable. *Eng N* 73:685 Ap 8 '15

Steel cable grips. *II diags Elec R & W Elec'n* 66:1210 Je 26 '15

Wire cables of various types and materials tested by U. S. Bureau of standards. *II diags Eng Rec* 73:567-8 N 6 '15

See also Cable railroads; Cableways; Electric cables; Ropes; Wire

Cables, Electric. *See* Electric cables

Cables, Submarine

Cable-repairing steamer "Transmitter." *F. C. Coleman. II plan Int Marine Eng* 30:382-6 S 15

French-built cable ship Edouard Jéramac. *F. C. Coleman. II diags Int Marine Eng* 20:146-50 Ap '15

Mobilizing news. *C. E. Crane. II Sci Am* 112:134-5 F 6 '15

Submarine cable installation across Wallabout canal. *II Elec Ry J* 45:805 Ap 24 '15

Submarine cable rapid telegraphy; ocean and intercontinental telephony. *II. Gatl. II diags Am Inst E E Pro* 34:2101-29 S 15

Unbroken alternating current for cable telegraphy. *(I. O. Squier. diags J E Inst* 180:511-34 S 15; Abstract. *Elec W* 66:299-300 Ag 7 '15

Cableways

Aerial ropeways. *II diags Engineer* 119:55-5, 108-10, 223-5, 352-5, 375-6 Ja 15, 29, Mr 5, Ap 9-16 '15

Aerial ropeways. *II. Davies. Engineer* 119:141 F 5 '15

Cableway carries curved reinforcing bars up steep hill. *(I. W. Davidson. II Eng Rec* 72:492 O 16 '15

Cableway coaling station. *II plans Ry Age* 68:336 F 19 '15

Design and construction of aerial ropeways. *diags Engineer* 120:79-81 J 23 '15; *Excerpt (Power for driving) Eng & Min J* 100:393 S 4 '15; *Excerpt (Traction rope) Eng & Min J* 100:375 S 18 '15; *Excerpt (Track ropes) Eng & Min J* 100:518 S 25 '15

Imagline cableway is an effective tool for sand and gravel plants. *II Eng Rec* 71:716-18 Je 5 '15

Islanding construction material by aerial tramways. *diags Eng N* 73:1170-1 D 10 '14

Hoist on revolving headframe operates drag-line. *diags plan Eng Rec* 71:742-3 Je 12 '15

Home-made cableway changes shuffling on catwalk. *Joh. H. D. Hammond. II Eng Rec* 72:147-8 J 31 '15

Temporary travelling cableway at Goldfield mines. *II Eng N* 74:753-4 O 14 '15; *Same. Eng & Min J* 100:673 O 23 '15

Unique conveyor in automobile plant. *II plan Iron Age* 96:565-8 S 9 '15

See also Conveying machinery; Suspended railways; Telferage

Cabooses cars. *See* Cars, Caboose

Cabriolet. *See* Automobiles - Bodies

Cadmium

Atomic weight of cadmium. *(I. A. Hulet and R. L. Quinn. Am Chem Soc J* 37:1997-2000 S 15

Reproducibility of the cadmium electrode. *F. H. Getman and V. L. Gibbons. II Am Chem Soc J* 37:953-70 My '15

Revision of the atomic weight of cadmium: the electrolytic determination of cadmium in cadmium chloride. *(I. P. Baxter and M. L. Hartmann. Am Chem Soc J* 37:113-31 Ja '15

Cadmium chloride

Revision of the atomic weight of cadmium: the electrolytic determination of cadmium in cadmium chloride. *(I. P. Baxter and M. L. Hartmann. Am Chem Soc J* 37:113-31 Ja '15

Cadmium iodide

Study of alcoholic solutions of cadmium iodide. *F. H. Getman and V. L. Gibbons. Am Chem Soc J* 37:1990-6 S 15

Caesium chloride

Ionic hydration and transference numbers of caesium chloride. *(I. W. Washburn and R. B. Millard. Am Chem Soc J* 37:694-9 Ap '15

Caffein

Estimation of caffeine and antipyrin in admixture. *W. O. Emery and S. Palkin. J Ind & Eng Chem* 7:519-21 Je '15

Cairo, Egypt

Bridges

New swing bridge over the Nile at Cairo. *II diags Engineer* 120:270-2, 274 S 17 '15

Sewerage

New sewerage system of Cairo, Egypt. *diags Eng N* 74:545 S 16 '15

Caissons

Balloon docks. *II Sci Am* 112:18 Ja 9 '15

Building concrete caissons in the Plate river. *J. H. Merriam. II diags Ry Age* 59:383-6 Ap 27 '15

Home-made cableway changes shuffling on caisson. *Joh. H. D. Hammond. II Eng Rec* 72:147-8 J 31 '15

Lock entrance caisson for the Panama canal. *L. A. Munson. II diags plan Gen Elec R* 18:210-16 Mr '15; *Same cont. Eng N* 72:1699-1102 D 3 '14

Railroad building under and over the streets of New York. *II map Sci Am* 113:96-7 J 31 '15

See also Bridges; Foundations and piers; Compressed air; Foundations

Calamine

Why not call things by their right names? *A. H. Purdue. Eng & Min J* 100:65-6 S 6 '15

See also Zinc ores

Calcium carbide

Calcium carbide from carbidic lime, a patent of Herman L. Hartenstein. *Met & Chem Eng* 13:755 O 15 '15

Description of patent. *Met & Chem Eng* 13:612 S 8 15 '15

Preparation of pure calcium carbide. *M. D. Thompson. Met & Chem Eng* 13:779-80 D 11 '14

Calcium carbonate

Solubility product constant of calcium and magnesium carbonates. *J. Johnston. Am Chem Soc J* 37:2901-29 S 15

Calcium chloride

Comparison of the relative drying power of sulfuric acid, calcium chloride and aluminum trioxide when used in ordinary desiccator desiccating jars. *J. W. Marden and A. E. Bott. J Ind & Eng Chem* 7:820-1 Ap '15

Calcium nitrate

Conductivity study of the reaction between calcium nitrate and dihydrogen phosphate in dilute solution. *W. A. Withers and A. L. Kell. Am Chem Soc J* 37:1691 Nov My '15

Solubility curves of salt hydrates: calcium nitrate. *(I. S. Taylor and W. S. Henderson. Am Chem Soc J* 37:1688-91 J 1 '15

Calcium silicate

Comparison of silicates and carbonates as sources of lime and magnesia for plants. *W. H. MacIntosh and L. C. Willis. II J Ind & Eng Chem* 6:1093-8 D 14 '14

Calcium sulphate. *See* Anhydrite

Calculating machines

Arithmetic machines. *(I. E. Goldberg. II diags W Soc E J* 19:859-80 N 11; *Same. Sci Am* 87:559-60, 75-6 Ja 23-30 '15

Computing machine for areas of irregular tracts. *(I. D. Norton. Eng N* 73:394 F 25 '15

Computing machines in engineering. *(I. H. Skinner. II Eng N* 73:25-7 Ja 7 '15

Electric calculating machine for engineer and contractor. *II Munic Eng* 48:74 S Ja '15

Fraction calculator. *F. Szabo. diags Mach* 21:670-1 Ap '15

Handy flywheel calculator. *II Power* 42:483 N 16 '15

Calculating machines—Continued

- Machine accounting in a pump works; Hollerith tabulating system. S. G. Koon. *Iron Age* 96:408-11 Ag 19 '15
- Multiplying large numbers on adding machines. R. C. Hardman. *Eng N* 74:703 O 7 '15
- Pocket calculator. *Il Power* 40:373-4 D 22 '14
- Reducing square feet to decimals of acres. *Eng N* 74:363 Ag 19 '15
- Ross precision computer giving results accurate to five places. *Il Eng & Contr* 44:298 O 12 '15; *Elec W* 66:604 S 11 '15; *Colliery* 36:166-7 O '15; *Eng Rec* 72:466 O 9 '15
- Wage premium calculator. *Il Iron Age* 96:757 S 30 '15

See also Slide rule

Calendars

- Four-thousand-year calendar. *Sci Am S* 78:400 D 19 '14
- Perpetual calendar. W. J. Spillman; S. F. Kennedy. *Il Sci Am S* 79:141 F 27 '15

Calgary, Alberta**Electricity supply**

- Cost of combination electric service. *Elec W* 66:1181-3 My 8 '15

Rapid transit

- Calgary's municipal street railway. W. E. Hardenburg. *Il Muncie J* 39:395-7 S 9 '15

Calibration

- Calibration charts for Vanderbilt tenders. T. Pelee. *By Age* (Mech ed) 89:563-5 N '15
- Calibration curve for horizontal cylindrical tanks. *Met & Chem Eng* 13:511 Ag '15
- Calibration of current transformers by means of mutual inductance. C. Porteous. *Il diag* Am Inst 19 16 Pro 34:1199-1215 Je '15

California**Architecture**

- Country home architecture on the Pacific coast. L. C. Mulgardt. *Il plans Arch Rec* 38:423-51 O '15

Description and travel

- California tree novelties. E. A. Sterling. *Il Am For* 21:768-78, 853-60 Ji-Ag '15
- Motor travel in desert country of southern California. L. H. Eddy. *Il Eng & Min J* 100:835-7 N 20 '15
- Skid travel in California. W. H. Wright. *Il Eng & Min J* 99:521-2 Mr 20 '15

Flood control

- \$16,000,000 required for Los Angeles county flood protection. *Il diag* map *Eng Rec* 72:204-6, 232-3 Ag 14-21 '15

Industries and resources

- California oil in 1914. M. L. Requa. *Eng & Min J* 99:139-40 Ja 16 '15
- Pacific coast iron situation; the iron area of California and possibilities of smelting. C. C. Jones. *map Am Inst Min* 19 Bul 105:1587-93 S '15; *Discussion*. 108:2496-504 D '15
- Topping plants of California. A. E. L. Bell. *Il diag* Am Inst Min 19 Bul 105:1769-99 S '15

California (battleship)

- Keel of first electrically propelled battleship laid. *Elec W* 66:844 O 16 '15
- United States battleship California and crew. *Sci Am* 113:63 Ji 17 '15

California association of electrical contractors and dealers

- By-laws. *Elec R & W Elec'n* 67:841-3 N 6 '15

California state association of master plumbers 14th annual convention, San Francisco, July 1-3, Dom Eng 72:146-9 Ji 31 '15**Calipers**

- Convenient form of plate caliper. *Locomotive* 30:169-70 Ap '15

See also Micrometers

Callow pneumatic process. See Motion process**Calorimeters and calorimetry**

- Acid-resisting alloy to replace platinum in the construction of a bomb calorimeter. H. W. Parr. *Il Am Chem Soc J* 37:2615-22 N '15

- Aneroid calorimeter. H. C. Dickinson and N. S. Osborne. *Il diag* U S Bur Stand Bul 12:22-48 O 28 '15; *Abstract*. *Am Soc M* 13 J 37:294 My '15; *Summary*. *J Fr Inst* 179:492-3 Ap '15
- Aneroid calorimeter and specific heat of ice. *Iron Tr* 11 57:223 Ji 29 '15
- Apparatus for the study of heat radiation. J. D. Hoffman. *Il Heat & Ven* 12:238-39 O '15
- Combustion calorimetry and the heats of combustion of cane sugar, benzoic acid, and naphthalene. H. C. Dickinson. *biblog U S Bur Stand Bul* 11:189-267 Mr 1 '15
- Diagram for throttling calorimeter. *Il S. Bayard*. *Power* 42:618 N 2 '15
- Difficulty of measuring heat, with special reference to radiated and convected heat. A. H. Barker and F. C. S. Brendal. *Heat & Ven* 12:21-4 My; 33-4 Je '15
- Easy calorimetric methods of high precision. W. P. White. *diag* Am Chem Soc J 36:2313-33 N '14
- Effect of high ignition-voltages on the accuracy of bomb calorimeter determinations. R. J. Dittus. *diag Met & Chem Eng* 13:480-1 Ag '15

Gas testing ordinances: coming of calorimetry.

- J. Abady. *Il Am Gas Light J* 101:369-71 D 14 '14

- Heats of combustion of aromatic hydrocarbons and hexamethylene. T. W. Richards and F. Barry. *Il Am Chem Soc J* 37:993-1020 My '15
- How radiant heat from gas radiators is determined. *plan Heat & Ven* 12:24-6 My '15
- Potentiometers for thermoelectric measurements especially in calorimetry. W. P. White. *diag* Am Chem Soc J 36:1868-85 S '14

Standardization of bomb calorimeters.

- U S Bur Stand Circ 11:1-17 '15

- Synthermal regulator, a device for automatically maintaining an adiabatic condition in calorimetry. T. W. Richards and G. D. Os-good. *diag Am Chem Soc J* 37:1718-20 Ji '15
- Testing fuel with the Emerson calorimeter. *diag Eng M* 49:sup 2-3 S '15
- Tests of a new recording calorimeter. C. H. Stone and W. H. Thuman. *Am Gas Inst Pro* 9:pt 1, 200-10 '11; *Same*. *Am Gas Light J* 101:387-90 D 21 '14; *Discussion*. *Am Gas Inst Pro* 9:pt 1, 210-17 '14

Thermocouple installations, especially for calorimetry.

- W. P. White. *diag* Am Chem Soc J 36:1856-68 S '14

Thermocouples of precision, especially for calorimetry.

- W. P. White. *Il Am Chem Soc J* 36:2292-313 N '14

Three methods of measuring radiant heat from gas fires.

- W. E. Twigg. *Il diag* Heat & Ven 12:33-6 S '15

Vacuum jacketed calorimeters, with special reference to the degree of thermal insulation secured by the use of a vacuum jacket.

- U S Bur Stand Bul 11:319-29 Mr 1 '15

See also Cooling; Specific heat

Calorizing

- Aluminum alloys as surface protection for metals subject to high temperatures. *Eng N* 72:1123 D 3 '14

Calorizing: a protective treatment for metal.

- H. B. C. Allison and L. A. Hawkin. *Il Gen Eng* 11 17:597-61 O 14; *Same*. *Sci Am S* 78:341-2 N 28 '14; *Same* cond. *Am Gas Light J* 101:399-10 N 16 '14; *Same* cond. *Eng M* 48:265-7 N '14; *Same* cond. *Met & Chem Eng* 12:730 N '14; *Same* cond. *Iron Age* 94:1386-7 D 17 '14; *Same* cond. *Metal Work* 82:815-1 D 25 '14

Calorizing metals.

- W. B. Ruder. *Met & Chem Eng* 13:325 My '15

Calvert, Texas**Water supply**

- Sewage-treatment plant at Calvert. T. L. Mountain. *Il diag* plan *Eng N* 73:530-4 My 13 '15

Calycanthus

- Volatile oil of *calycanthus floridus*. E. H. Miller. G. W. Taylor, and M. H. Iskow. *Am Chem Soc J* 36:2182-7 O '14

Cambria steel company

- Report for year ended December 31, 1914. *Iron Age* 95:356-7 E 11 '15

Cambridge university press

Electricity in the publishing business. *Il Elec R & W Elec'n* 65:1089-73 D 5 '14

Camden, New Jersey**Streets**

Camden's municipal asphalt plant. *Il Munic J* 38:137-9 F 4 '15

Cameragraph

Machine reproduces, develops and prints all in itself. *Il Eng Rec* 72:32 J1 3 '15

Photographing on both sides of a sheet. *Il Iron Age* 95:1122-3 My 20 '15

Cameras

Camera for reading meters. *Il Am Gas Light J* 103:141 Ag 30 '15; *Mach* 23:75-6 S '15

Convenient color camera. C. M. Clark. *diag J Ind & Eng Chem* 6:1013 D '14

Photographic maps; methods of producing correct charts with the camera. Kappel. *Il diag Sci Am S* 80:200-1 S 25 '15

Positive postcard camera. *diag Sci Am S* 78:384 D 12 '14

See also Photography

Camp buildings. See Construction camps**Campbell, William Wallace, 1862-**

President American association for the advancement of science. M. Benjamin. *por Sci Am* 113:98 J1 31 '15

Camphor

Our beginnings in camphor. *Sci Am* 112:71 Ja 10 '15

Camping

Boy scouts and forests. K. W. Woodward. *Il Am For* 21:103-9 F '15

Camps, Construction. See Construction camps**Camps, Military**

Camp engineering—water purification. *Sci Am* 87:383 Jo 12 '15

See also Concentration camps

Cams

Cutting barrel cams on the lathe. M. H. Chase. *diag Mach* 22:230-1 N '15

Improved form of cam for stamp mills. A. B. Photo. *diag Am Inst Min & Bul* 96:2705-6 D '14; *Same. Eng & Min J* 98:1046 D 12 '14

Camshafts

Thermal welding of camshafts. A. H. Jones. *Mot & Chem Eng* 13:929 D 1 '15

Canada

Nation in perspective; Canada at the Panama-Pacific exposition. R. H. Hurbut. *Il Sci Am S* 80:17, 24-5 J1 10 '15

See also Railroads—Canada

Description and travel

Parks in the Canadian Cordillera. J. A. Allan. *Il Sci Am S* 80:350-2 D 4 '15

Industries and resources

Mineral production of Canada. J. McElish. *Eng & Min J* 99:488-9 Mr 13 '15

See also Mines and mineral resources—Canada; Water power—Canada

Canadian and international good roads convention

2d convention and exhibition, Toronto, Ont., March 22-26. *Good Roads n w* 9:148-9 Ap 3 '15

Canadian mining institute

17th annual convention, Toronto, March 3-5. *Eng & Min J* 99:499-500 Mr 13 '15

Canadian Northern railroad

Canadian Northern railway completed. *Ity R* 56:148-9 Ja 30 '15

Canadian Northern Rty. opened to the Pacific coast. *Il map Eng N* 74:1098-9 D 2 '15

Canadian Northern tunnel and terminal electrification. W. C. Lancaster. *Il diag maps Gen Elec R* 17:1068-76 N '14; *Same. Ry R* 66:710-15 D 12 '14

Completing the Mount Royal tunnel into Montreal. *Il diag plan Ity Age* 59:857-60 N 5 '15

Canadian Pacific railroad

Annual report for the year ended June 30, 1915. *map Ry Age* 59:877-8, 410-12 Ag 27 '15

Calculations showing economy of constructing the Rogers Pass tunnel. J. G. Sullivan. *diag Eng & Contr* 44:398-400 N 17 '15

Comparison of the old and new lines of the Canadian Pacific at Rogers Pass. B. C. J. G. Sullivan. *Ity Age* 58:194-5 Ja 20 '15

Driving a five-mile tunnel through the Selkirk. *Il diag map Ity Age* 57:1082-4 D 11 '14

Flanking the Selkirk mountains for a five-mile tunnel. *Il map Eng Rec* 70:804-6 D 5 '14; *Same cond. Eng M* 48:760-2 F '15

Canadian society of civil engineers

20th annual meeting, Montreal, Jan. 26 to 28, 1915. *Eng N* 73:235 F 4 '15

Canals

Circumventing Niagara falls. B. Furrows. *Il map Sci Am S* 78:387-8 D 19 '14

Connecting Lulu with the sea; completion of the Cello canal along the Columbia river. R. W. Vincent. *Il Sci Am* 112:476 My 23 '15

Construction of the Welland ship canal. W. A. Craik. *Il plan Int Marine Eng* 20:151-6 Ap '15

Driving the tunnel for the Marcellus-Rhone canal. R. E. Wagner. *diag Eng N* 71:803-4 O 21 '15

Largest tunnel in the world. E. L. Corthell. *diag map Eng N* 74:386-7 Ag 26 '15; *Abstract. Eng & Min J* 100:800 N 13 '15

Old wall used as coffer-dam falls at Louisville. *Il Eng N* 74:764-5 O 14 '15

Preliminary estimating of canal excavation. L. M. Hammond. *Eng Rec* 71:46-7 Ja 30 '15

Proposed Lake Erie and Ohio river canal; with discussion. G. F. Stuckey. *map Eng Soc W Pa* 31:285-33 My '15

Rove tunnel on the canal from Marcellus to the Rhone. Bourgougnon. *diag Eng & Contr* 43:536-7 Jo 10 '15

Seventy years of civil engineering. *Il Sci Am* 112:629 Jo 5 '15

Ship canal for New Orleans, La. *map Eng & Contr* 41:sup23-4 Ag 18 '15

See also Aqueducts; Irrigation canals; Waterways; also names of canals, e.g. New York state barge canal, Panama canal

Locks

See Locks (canals and rivers)

Cancer

Danger of delay in cancer. *Sci Am* 112:424 My 1 '15

Radium treatment of cancer. *Sci Am* 87:409 Jo 26 '15

What everyone should know about cancer. J. C. Woodgood. *Sci Am* 87:231 Ap 10 '15

Canneries

Disposal of cannery wastes. D. Engle. *Munic J* 38:98-9 Ja 21 '15

Canning and preserving

Canned-goods trade in the Far East. J. A. Shriver. *Il S Bur For & Com Com* 92:1-78 '15

Canned-tomato industry in Italy. J. A. Shriver. *Il S Bur For & Com Com* 93:1 23 '15

Contributions of the chemical to the preserved foods industry. R. L. Bentley. *J Ind & Eng Chem* 7:287-9 Ap '15

Effect of the mineral content of water on canned foods. H. L. Huelsink and E. Hurtow. *J Ind & Eng Chem* 7:495-6 Jo '15

Methods followed in the commercial canning of foods. A. W. Hitting. 3 pls *Il S Agric Bul* 196:1-79 '15

Pineapple-canning industry of the world. J. A. Shriver. *O S Bur For & Com Com* 91:1-45 '15

Utilizing wastes in canning pineapples. *Sci Am* 87:361 Jo 5 '15

See also Canneries; Food preservation

Cannon ball tree

Cannon ball tree of tropical America. *Il Sci Am* 87:93 F 6 '15

Canthlever bridges. See Bridges, Canthlever

Canvastown for government employees in New South Wales. *Il Sci Am* 112:479 My 22 '15

Caoutchouc. See Rubber**Cape Girardeau, Missouri**

River-front improvement at Cape Girardeau. *Il Eng N* 73:274-5 My 6 '15

Capillarity

- Capillary concentration of gas and oil. C. W. Washburne. *Am Inst Min & Bul* 93:2365-78 S '14; Discussion. 100:831-46 Ap '15
- Drop weight method for the determination of the surface tension of a liquid. J. L. R. Morgan. *Am Chem Soc J* 37:1461-7 Je '15
- Surface tension due to intermolecular attraction. O. Lehmann. *diags Sci Am S* 80:341 N 27 '15
- Surface tensions of water, methyl, ethyl and isobutyl alcohols, ethyl butyrate, benzene and toluene. T. W. Richards and L. B. Coombs. *il diag Am Chem Soc J* 37:1668-70 J1 '15

See also Brownian movements

Capital

- Capital and income—capital and revenue. A. J. B. Schmidt. *J Account* 20:283-90 O '15
- Capital as a liability. J. Account 18:417-9 D '14
- Working capital. W. J. Norton. *Am Inst E* 10 Pro 34:2140-58 S '15

See also Banks and banking; Interest; Investments

Capitol buildings

- Heating and ventilating plant for the Missouri state capitol; reversible system of air supply for house and senate chambers. *il diags plans Heat & Ven* 12:13-21 My '15
- Thomas Jefferson and the first monument of the classical revival in America. F. Kimball. *il Am Inst Arch J* 3:370-81, 421-34, 473-91 S-N '15
- Utah state capitol. *il Arch & Bldg* 47:324-30 S '15

Car. See Cars**Car and locomotive painters' association.** *See* Master car and locomotive painters' association**Car builders' association, Master.** *See* Master car builders' association**Car cleaning**

- Car-cleaning practice. *Elec Ry J* 45:515-16 Mr 13 '15
- Plant for sand blasting steel cars. *diags Ry Age* 59:397-8 Ag 27 '15; Same. *Ry Age (Mech ed)* 89:427-8 Ag '15
- Use of the vacuum system for cleaning cars in San Francisco. E. W. Allen. *il Elec Ry J* 45:516-17 S 18 '15
- Vacuum cleaning cars. E. J. Haines. *il Elec Ry J* 46:323 Ag 21 '15

Car couplings

- Automatic freight truck coupler. *il Ry Age* 59:407-8 S 10 '15
- Emergency coupler head. *diag Ry Age (Mech ed)* 89:484-5 S '15
- Handling coupler yokes. *il Ry Age (Mech ed)* 89:592 N '15
- Master car builders' association committee report. *Ry J* 56:837-8 Ja 19 '15
- Omaha coupler with air and electrical connections for trailer service. T. B. Wood. *il diags Elec Ry J* 44:1267 D 5 '14
- Proposed M. C. B. standard coupler. *Ry J* 55:765-6; 56:59-60, 121, 186-7 D 26 '14, Ja 9, 23, 16 6 '15

Car distributor. *See* Railroads—Management**Car dumping machines.** *See* Dumping appliances**Car fenders**

- Novelty in fenders. *il diags Elec Ry J* 45:723-4 Ap 10 '15

Car ferries

- Car ferry of the Florida West Coast railway. *il plan Ry Age* 58:188 Ja 29 '15
- Car-transfer ferry on the Ohio. C. L. & C. R. R. *diags plans Eng N* 74:599-600 S 23 '15
- Ice-breaking train ferry steamer. *il diag plan (supp) Engineer* 120:49-50 J1 '16; Abstract. *Int Marine Eng* 20:515 N '15
- Large motor-driven railway train ferry for service in San Francisco Bay. C. J. Holden. *il plans Int Marine Eng* 20:302-4 J1 '15
- New car ferry with adjustable deck from Moncton, N. B. across the St. Lawrence river. *il diag Ry Age* 58:365-6 F 26 '15
- Portable stop for a car-ferry incline. *diag Eng N* 74:221 J1 29 '15
- Roads allowed to retain car ferries. *Ry J* 56:721-8 My 29 '15

- Side-wheel car ferry Contra Costa. E. W. Olin. *il diags Int Marine Eng* 20:385-94 S '15
- To Cuba by rail. H. C. Plummer. *il map Sci Am S* 79:40-1 Ja 16 '15
- Train ferries, Swedish state railways. *il diag plan Ry J* 57:299-301 S 4 '15

Car heating

- Electric heating and electric heater control. W. S. Hammond, Jr. *il diags Am Soc Heat & V E* 20:279-93 '14
- Light-weight all-steel panel heater. *il diag Elec Ry J* 46:773 O 9 '15
- Study of car-heating requirements. *Elec Ry J* 45:103-4 Ja 9 '15

Car houses

- Car maintenance on the San Francisco-Oakland terminal railways. G. St. Pierre. *il diags Elec Ry J* 45:527-30 S 18 '15
- Carhouse for a residential district. *il diag plan Elec Ry J* 45:600-3 Ap 3 '15
- Carhouse of Seattle municipal railway. H. J. Kennedy. *il Elec Ry J* 45:513-14 Mr 13 '15
- Design, construction and detailed costs of a car storage house in Council Bluffs, Iowa. W. L. Fulton. *plans Eng & Contr* 44:31-5 J1 14 '15
- Enlarging the Geary street municipal carhouse at San Francisco. *diags Elec Ry J* 45:567-8 Ap 3 '15
- Kilnproof carhouse at Vancouver. B. C. *il plan Elec Ry J* 45:227-8 Ja 30 '15
- New carhouse and shops at Holyoke. *il plan Elec Ry J* 45:390-1 My 15 '15

See also Car inspection

Car inspection

- Car service inspection in Seattle. J. W. McCloy. *Elec Ry J* 46:272-3 Ag 14 '15
- Chief Interchange car inspectors' and car foremen's association, 17th annual convention. *Ry Age (Mech ed)* 89:522-5 O '15
- Inspection and repairs of freight cars by piecework. J. J. Tolin. *Ry Age (Mech ed)* 89:457-8 S '15
- Making of good car inspectors. A. M. Orr; "16. C." *Ry Age (Mech ed)* 89:575-8 N '15
- Uniformity in car inspection. M. March. *Ry Age (Mech ed)* 89:468 S '15

Car lighting

- Analysis of requirements for modern street car lighting. L. C. Poma. *il diags Illum Eng Soc* 10:82-100 no 1 '15
- Better car illumination effects other economies. *Elec Ry J* 44:1308-9 D 12 '14
- Car electric lighting systems. E. S. McNab. *Ry Age (Mech ed)* 89:407-8 S '15
- Car lighting generator with underframe suspension. *il diags Ry Age* 59:208 J1 30 '15; *Eng N* 73:1094 Ja 3 '15
- Electric lighting of railway passenger cars. E. S. McNab. *Ry J* 57:696-9 N 27 '15
- Illumination of cars. *Elec W* 65:729-30 Mr 20 '15
- Improved head-end axle generating system for train lighting. *il Elec R & W Elec N* 67:490-1 S 11 '15
- Improved lighting for Westchester cars. *il Elec Ry J* 46:918-19 O 30 '15
- New York municipal car the lighting. W. C. Gove. *il Elec Ry J* 45:514-18 Mr 27 '15
- Practical study of car lighting problems; with discussion. W. C. Gove and L. C. Porter. *bibliog il plans Illum Eng Soc* 10:227-52 no 3 '15
- Recent improvements in the electric lighting of steam railroad cars. R. C. Laupher. *il diags Am Inst E* 10 Pro 31:1829-46 Ag '15
- Regulator for car-lighting circuits. *il diags Elec Ry J* 45:851-2 My 1 '15
- Underframe axle lighting equipment. *il diags Ry J* 55:568-70 Ap 24 '15; *Ry Age (Mech ed)* 89:257-8 My '15

Car load. *See* Freight car service—Car load**Car painting**

- Master car and locomotive painters' 46th convention. *Ry Age* 59:568-8 S 24 '15
- Master painters' 46th annual meeting. *Ry Age (Mech ed)* 89:539-42 O '15
- Painting cars in two days. P. V. See. *il diag Elec Ry J* 45:584-6 Mr 20 '15
- Painting locomotives and steel cars. M. L. Sims. *Ry Age (Mech ed)* 88:641-2 D '14; Abstract. *Am Soc M E* J 37:120-1 F '15

Car painting—Continued

Painting steel car doors. *diag* Ry Age (Mech ed) 88:643-4 D '14
 Relation of the paint shop to the repair yard. W. Buchanan. *Ry Age* (Mech ed) 89:28-9 Ja '15

Steel car design from a protection standpoint. J. D. Wright. *Ry Age* (Mech ed) 89:525-6 O '15

Car pooling. See Freight car service

Car pullers

Car-pullers for switching at industrial plants. *Eng N* 74:299 Ag 12 '15

Car resistance. See Train resistance

Car roofs

Passenger car roof construction. *diag* Ry Age 59:332 Ag 20 '15; Same. *Ry Age* (Mech ed) 89:486-6 S '15

Testing car roofs for leakage. *diag* Ry Age (Mech ed) 88:374; 89:399 J1 '14, Ag '15; *Ry R* 56:787-8 Je 12 '15; *Sci Am* 113:276 S 25 '15

Car sanitation. See Car cleaning; Car ventilation; Cars—Disinfection

Car shops. See Railroads—Shops

Car signs

Route signs for surface cars. *Il Elec Ry J* 46:260-2 Ag 14 '15

Car spotting charges. See Railroads, Industrial

Car trucks

Experiments to determine the forces imposed on a truck side frame and the stresses produced. L. B. Lindsay. *Il diag* Ry R 56:360-3, 491-7 Ap 3-10 '15; Same cond. *Ry Age* (Mech ed) 89:127-9 Mr '15

Forging the forged truck side frame. *Il Ry R* 57:187 Ag 7 '15

Four wheel trucks for passenger cars. R. V. Wright. *diag* Ry Age (Mech ed) 89:569-74 N '15

Master car builders' association committee report. *Ry R* 56:241-2 Je 19 '15

Narrow-gauge cars for the Burma mines. Ry. F. C. Coleman. *Il plans* Ry R 57:173-5 Ag 7 '15

Roller steel truck frames. *Il Ry Age* 59:331 Ag 20 '15

Truck designed for low maintenance costs. *Il Elec Ry J* 45:1126 Je 12 '15

See also Draft gears

Car ventilation

Improvement in sanitation of cars; with discussion. D. L. Cooke. *Il diag* Am Soc Heat & V 10 20:253-78 '14

Tests of exhaust ventilators on passenger trains. G. L. Fowler. *Ry Age* 58:1009-12 My 14 '15; Same. *Ry Age* (Mech ed) 89:236-8 My '15

Ventilation of sleeping cars. T. R. Crowder. *Ry Age* (Mech ed) 89:464-6 S '15

Car wheels

Accident caused by defective wheels. H. W. Behn. *Ry Age* 59:48 J1 9 '15

Annealing car wheels. W. J. Keop. *Foundry* 43:197-8 My '15

Association of manufacturers of chilled iron wheels; presidential address. G. W. Lyndon. *Ry R* 57:505-6 O 16 '15; Same cond. *Ry Age* 59:600 O 15 '15; Same cond. *Ry Age* (Mech ed) 89:578 N '15; *Excerpta*. *Elec Ry J* 46:918 O 30 '15

Boring machine for car wheels. *Il Iron Tr R* 55:1180 D 24 '14

Built-up car wheels declared inadequate. *diag* *Eng N* 74:11 J1 '15

Car-wheel grinding machine. *Il Iron Age* 94:1485 D 31 '14

Causes of thick and thin wheel flanges. J. P. Barnes. *Elec Ry J* 46:189-90 J1 31 '15

Chicago elevated shop practice. *Il Elec Ry J* 46:561-2 Mr 20 '15

Chill and shrinkage of cast iron. R. A. Pitman. *Foundry* 43:304 Ag '15

Chilled car wheels. W. J. Keop. *Foundry* 43:469 N '15

Control of chill in cast iron, considering the elements effective in the manufacture of malleable castings and chilled car wheels. C. M. Thrasher. *Il Am Inst Min* 10 Jul 108:129-38 O '15; Same. *Foundry* 43:401-3, 4 D '15; Same. *Iron Tr R* 57:1171-3, D 18 '15

Danger of welding processes as applied to tires and wheels. M. D. Hayes. *Il Elec Ry J* 46:942-4 My 15 '15

Effect of car-wheel diameter on motor heating. *Elec Ry J* 46:70 J1 10 '15

Effect of car-wheel diameter on motor heating. A. L. Tromball. *Elec Ry J* 46:152-3 S 11 '15

Effects of variance in car-wheel diameters on motors. A. S. Langsdorf. *Elec Ry J* 44:1344 D 19 '14

Energy contained in revolving wheels and locomotive slide rods. W. E. Symons. *Ry Age* 59:455 S 10 '15

Fuel ratio for car wheel iron. A. S. Dowler. *Foundry* 43:497-8 Mr '15

Fuel ratio on car wheel iron. W. J. Keop. *Foundry* 43:51-2 F '15

Grinding street car wheels under the car. *Il Mach* 21:462 F '15

Making car wheels at the Lehigh car works. C. S. Evans. *Foundry* 43:351-3, 428-31, 435-9 S-N '15

Old and new methods of making carwheels. G. V. Slocum. *diag* Iron Age 96:676-9 S 23 '15

Relation of wheel coning to rails and the plates. W. M. Osborn. *Ry R* 56:357-9 Mr 13 '15

Report on wreck due to broken car wheel. *diag* Ry R 56:789-91 Je 12 '15

Restoring steel wheel flanges with a welder. J. A. Murphy. *Il Elec Ry J* 45:719-20 Ap 10 '15

Shrinkage cracks in car wheels. W. J. Keop. *Foundry* 43:280 J1 '15

Strong claims for chilled iron car wheels. E. K. Vial. *Ry Age* 58:820 Ap 16 '15

Wheel diameter and motor heating. F. J. Foote. *Elec Ry J* 46:211 O 30 '15

Wreck due to a faulty car wheel. *Il Iron Tr R* 57:337-40 J N 11 '15

See also Axles

Carbide lamps

Miners' carbide lamps. J. W. Paul. *Il S Bur Mines* 18:1 10 '14

Carbohydrates

Acetolysis of carbohydrates. S. Iohn and J. M. Nelson. *Am Chem Soc J* 37:1463-9 J1 '15

Carbolic acid

Analysis of coal with phenol as a solvent. S. W. Parr and H. E. Hadley. *Il diag* map III U Bur Exp Sta Bul 76:3 J1 '11

Extraction of carbolic acid from oils of the distillation of coal tar. W. Mason. *diag Met & Chem Eng* 13:293 4 My '15

Phenol for coal analysis. *Sci Am* 11 79:339 Ma 29 '15

Synthetic phenol and picric acid. A. H. Noy. *Met & Chem Eng* 13:956 90 O 1 '15; Same. *Sci Am* 8 80:346-7 N 27 '15

Carbolium

Carbolium and cresote. H. H. Abcock. *Am Gas Light J* 103:8-9, 125 J1 26, Ag 23 '15

Carbolium and cresote. S. R. Church. *Am Gas Light J* 103:108 Ag 16 '15

Carbon

Carbon as a heating element in appliances. C. W. Piper. *Elec W* 66:134-5 J1 17 '15

Effect of carbon on the physical properties of heat-treated carbon steel. J. L. Nod. *Il Am Inst Min* 10 Jul 106:2341 67 J1 '15

Free energy of some carbon compounds. G. N. Lewis and M. Randall. *Am Chem Soc J* 37:458-70 Mr '15

Liquefaction of carbon and the temperature and conditions of the electric arc. *Sci Am* 8 80:319 N 13 '15

Molecular weight of sodium carbonate and the atomic weight of carbon referred to silver and bromine. T. W. Richards and C. R. Hoover. *Am Chem Soc J* 37:195-197 Ja '15

Thermoelectric properties of carbon. W. C. Moore. *Am Chem Soc J* 37:2637-7 S '15

See also Chemistry; Organic; Coal; Coke; Electric light carbons

Carbon bisulphide

Removal of carbon bisulphide from coal-gas. K. V. Evans. *diag Met & Chem Eng* 13:239-40 Ap '15

Carbon brushes. See Brushes (electric machinery)

- Carbon dioxide**
Calculating dry flue-gas loss. C. W. Hubbard. Power 42:746-8 N 30 '15
Determination of carbon dioxide in baking powder and carbonates. H. W. Brubaker. diag J Ind & Eng Chem 7:432-3 My '15
How much CO₂ to expect with various kinds of fuel. V. J. Azbe. Power 42:712-14 N 23 '15
- Carbon dioxide recorders**
Hays CO₂ and draft recorder. II Eng M 49:sup 6-6 S '15
Parker CO₂ machine. II diag Power 42:297-9 Ag 31 '15
Recording power plant operations. J. C. Smallwood. II diag Eng M 50:33-40 O '15
U-tube carbon dioxide indicator. M. A. Cunningham. II diag Iron Age 96:870-2 O 14 '15
- Carbonia finish.** II Am Gas Light J 103:81 Ag 9 '15
- Carbonization of coal**
Carbonization in bulk—Koppers' ovens. C. J. Ransburg. II diag Am Gas Inst Pro 9:pt 1, 643-601; Discussion. 601-14 '14
Mode of decomposition of coal by heat. H. C. Porter and G. B. Taylor. diag Am Gas Inst Pro 9:pt 1, 234-83; Discussion. 9:pt 1, 283-8 '14
Report of the committee on progress in carbonization methods. II diag Am Gas Inst Pro 9:pt 1, 450-539; Discussion. 9:pt 1, 539-43 '14
- Carbons, Electric light.** See Electric light carbons
- Carborundum**
Carborundum and cork exhibits at the Panama-Pacific International exposition. II Met & Chem Eng 13:458-9 J1 '15
Silica, coke, sawdust and salt. C. F. Williams. Iron Tr Jr 56:457-8 Mr 4 '15
See also Silundum
- Carburetors**
Angular venturi in Edwards. diag Automobile 33:340 N 18 '15
Automatic carburetor for explosion motors. A. Kreis. diag Horseless Age 35:474-5 Ap 7 '15
Balanced valve on new Stromberg. II diag Automobile 31:1175 D 24 '14
Brad-Kent carburetor. II Horseless Age 35:539 Ap 21 '15
Car and carburetor design suitable for driving with any fuel. diag Automobile 33:288-91-1 Ag 12 '15
Carburetor and oiling of Stevens-Duryea. diag Automobile 32:276 F 11 '15
Carburetion trouble. I. N. McClinton. diag Power 41:275 F 23 '15
Carburetors and their work. R. C. Collins. II Horseless Age 36:19 J1 7 '15
Chaud carburetor. diag Horseless Age 35:851 Je 23 '15
Controlling the mixture without moving parts. diag Horseless Age 35:711-12 My 26 '15
Decision rendered in carburetor suit. Automobile 32:290 F 11 '15
Duplex carburetor for lights. II diag Automobile 32:199 Ja 28 '15
Extended venturi in new Schbler. diag Automobile 32:541 Mr 25 '15
Features of Brown carburetor. Horseless Age 34:923 D 23 '14
Franklin cylinder oil carburetor. II Power 41:674 My 18 '15
Gas and air in carburetors. Automobile 32:371 F 25 '15
Great variety in carburetors. II diag Automobile 32:238-49 F 4 '15
Influence of the carburetor nozzle on the mixture proportion in liquid fuel motors. K. Rummel. diag Horseless Age 35:508-11, 552-5, 584-7, 618-20, 680-2 Ap 14-My 5, 19 '15
Limit gauge for distance between an inside and an outside surface. diag Mach 21:493 F 15
Langmuir carburetor now made in America. diag Automobile 33:386 Ag 28 '15
Master carburetor. diag Horseless Age 35:571 Ap 28 '15
New-Speed carburetor. diag Automobile 33:754 O 21 '15
New Stromberg type II carburetor. diag Horseless Age 34:879 J1 16 '14
Notes on carburation. M. T. Putnam. Horseless Age 35:347-50 Mr 10 '15
- Vacuum carburetor system.** diag Horseless Age 35:207 F 10 '15
Vacuum-velocity ratio not constant. A. B. Brown. II Automobile 31:1046-7 D 10 '14
See also Automobile engines; Automobiles—Feeding systems; Gas and oil engines
- Carburization.** See Case hardening
- Card clothing**
Improved construction invented in Switzerland. diag Textile World 50:180-90 N '15
- Card system in business**
Card index and what it means. J. J. Reynolds. Elec Ry J 46:815-18 O 16 '15
Card index increases efficiency of new-business department. Elec R & W Elec'n 66:899-900 My 15 '15
Card records in selling accessories. Horseless Age 35:229-30 F 17 '15
Follow-up card index of new buildings. Elec W 66:206 J1 24 '15
Where's that pattern? and how to locate it. H. A. Russell. II Foundry 43:263-5 J1 '15
See also Accounting; Files and filing (documents); Records
- Cardboard**
Where waste newspapers go. Sci Am 111:471 D 5 '14
- Carding machinery**
Stripping mechanism for cards. diag Textile World 50:73 O '15
- Carhouses.** See Car houses
- Caricatures and cartoons**
Truman Curtis, cartoonist. II. Hurley. II Inland Pr 56:281-6 O '15
- Carlisle, Pennsylvania**
Streets
Vitrified-brick pavement on an old macadam base. J. C. Hiltshaw. II diag Eng N 72:1262-3 D 24 '14
- Carnotite**
Concentration of carnotite ores. Met & Chem Eng 13:273 My '15
Extraction and separation of the radioactive constituents of carnotite. H. M. Plum. Am Chem Soc J 37:1797-1816 Ag '15
Method of treating carnotite ores. Eng & Min 1 99:864 My 15 '15
Radium-uranium ratio in carnotites. S. C. Lind and C. F. Whitmore. diag Am Chem Soc J 36:2066-82 O '14
Radium-uranium ratio in carnotites. S. C. Lind and C. F. Whitmore. II diag U S Bur Mines Tech P 88:1-28 '15
- Carolina, Clinchfield & Ohio railway**
Kirkhorn extension of the Carolina, Clinchfield & Ohio Ry. II Ry 11 56:239-42 F 20 '15
- Carpenter shops**
Details of a standard portable carpenter shop on construction work. II plans Concrete Cem 6:186 Ap '15
Planning a small carpenter shop. W. S. Wilkin. II plan Bldg Age 37:35-7 O '15
- Carpentry**
See also Building; Cabinet making; Cans; Doors; Floors; Lathes; Railings; Roofs; Scaffolding; Slide rule; Woodworking machinery
Study and teaching
Training carpenters for the trade at Bridgeport. J. E. Johnson. II Am Ind 15:26-8 Mr '15
- Carriers**
See also Commerce; Demurrage; Express companies; Freight; Interstate commerce; Railroads; Shipping; Steamboat lines
- Cars**
Buy State combination car. II diag Elec Ry J 46:854-7, 1058-73 O 23, N 27 '15
Brake shaft drop handle andatchet. diag Ry Age (Mech ed) 89:43 Ja '15
Buffalo, Rochester & Pittsburgh standard outfit cars. II plans Ry Age 58:1415-7 Je 18 '15
Car control. J. Fitzmorris. Ry Age (Mech ed) 89:71-2 F '15
Car design from a service standpoint. II diag Elec Ry J 46:578-80 S 18 '15
Cars and locomotives ordered and built in 1914. Ry Age 58:15-20 Ja 1 '15

Cars—Continued

- Cars and locomotives ordered in 1914. *Ity* R 56:36-41 Ja 2 '15
- Cars at less than cost. N. W. Storer. *Elec* *Ity* J 46:635 S 25 '15
- Combination car for Kansas interurban line. *I* *Elec* *Ity* J 46:806 Ap 24 '15
- Commissary car, Canadian Pacific railway. *I* plan *Ity* R 56:707-8 D 13 '14
- Curtain fixtures without pinch handles. *I* *Elec* *Ity* J 46:298-9 F 6 '15
- Extensible trap door for passenger cars. *I* plan *Elec* *Ity* J 46:116-17 J 17 '15; *Ity* Ago 59:207-8 J 1 30 '15; *Ity* Ago (Mech ed) 89:430-1 Ag '15; *Ity* R 57:268-9 Ag 28 '15
- Fireproofing wood for passenger car construction on British railways. *Ity* R 57:889 N 27 '15
- Improvements in Des Moines interurban cars. *I* *Elec* *Ity* J 46:156-7 J 1 24 '15
- Making interurban cars comfortable. *diag*s *Elec* *Ity* J 46:834 O 16 '15
- Master car builders' 49th annual convention. *Elec* *Ity* J 46:1163-4 Je 19 '15
- Master car builders' 49th annual convention. *Ity* R 56:832-42 Je 19 '15
- New passenger car equipment Union Pacific R. R. *I* plans *Ity* R 56:195-6 F 6 '15
- Relative merits of long and short wheel base scale-testing cars. C. A. Briggs. *I* *diag*s *Ity* R 57:197-201 Ag 14 '15
- Remodeled mail cars for housing government field parties. *I* plan *Ity* Ago 57:1149 D 18 '14
- Salt Lake & Utah railroad. *I* map *Elec* *Ity* J 46:54-5 Ja 2 '15
- Semi-steel cars in collision. C. G. Keen. *I* *diag* *Elec* *Ity* J 46:715-16 Ap 10 '15
- Steel frame double truck caboose. *I* *diag*s plan *Ity* Ago (Mech ed) 89:301-4 Je '15
- Steel frame passenger equipment with wood finish; new Grand Trunk suburban cars. *I* *diag*s *Ity* Ago 58:753-5 Ap 2 '15; Same. *Ity* Ago (Mech ed) 89:174-8 Ap '15
- To find maximum overhang of car on curve at platform. L. C. Jordan. *diag* Rec 71:340 Mr 13 '15
- U. S. Bureau of standards test weight car no. 2. *I* *Ity* R 57:483-4 O 16 '15
- Upkeep of railway carriages. *Ingineer* 120:171-3 Ag 20 '15
- Use of current for operating crane to remove trucks from under car bodies. R. E. Hewitt. *I* *Elec* *Ity* J 46:638 S 25 '15
- Veneered steel for interior finish of passenger cars, Canadian Pacific *Ity*. *I* *Ity* R 56:724 D 13 '14; Same. *Ity* Ago 57:1087-8 D 11 '14
- See also* Air brakes; Automobiles; Baggage and express cars; Bath cars; Brake beams; Brake shafts; Buffet cars; Car cleaning; Car couplings; Car heating; Car houses; Car lighting; Car painting; Car roofs; Car trucks; Car wheels; Chapel cars; Draft gears; Dynamometer cars; Electric railroads—tolling stock; Freight car service; Freight cars; Hospital cars; Motor cars (railroad); Refrigerator cars; Sleeping cars; Street cars; Tank cars

Bearings

- Ball bearings on electric railway cars; abstract. R. Zehnder-Spoerry. *diag*s *Am Soc M E* J 37:230-1 Ap '15
- Economics of the light car and of ball bearings. A. V. Farr. *Elec* *Ity* J 46:230-40 Ag 7 '15
- Lubrication of car journals. W. A. Clark. *Ity* Ago (Mech ed) 89:19-20 Ja '15
- Need of standard railroad car-bearing alloy. R. L. Clarke. *Foundry* 43:467-8 N '15
- Street railway service being inaugurated in Miami, Fla., with storage-battery cars. *I* *diag* *Elec* *Ity* J 46:920-1 O 30 '15
- Use of ball bearings on Swedish railways. *diag*s *Ity* R 56:600 My 1 '15

Cleaning

See Car cleaning

Disinfection

- Disinfectant arrangement for passenger cars. *diag*s *Ity* Ago (Mech ed) 89:466-7 S '15

Painting

See Car painting

Repair

- Car maintenance on a definite cost basis. K. C. Schluss. *Elec* *Ity* J 46:568-9 S 18 '15
- Car maintenance on the San Francisco-Oakland terminal railways. G. St. Pierre. *I* *diag*s *Elec* *Ity* J 46:527-30 S 18 '15
- Compensation for car repairs; Master car builders' association committee report. *Ity* R 56:835-6 Je 19 '15
- Maintenance of 1500-volt d. c. cars by the Southern Pacific company. E. Sears. *I* *Elec* *Ity* J 46:551-4 S 18 '15
- Maintenance of 1200-volt d. c. cars by the Oregon electric railway. D. L. Clough. *I* *Elec* *Ity* J 46:555-6 S 18 '15
- Maintenance of 1200-volt d. c. cars by the Southern Pacific company. R. E. Hewitt. *I* *Elec* *Ity* J 46:546-8 S 18 '15
- See also* Railroads—Shops

Ventilation

See Car ventilation

Cars, Caboose

- Eight-wheel caboose with steel underframe. B. E. Givin. *I* *diag*s *Ity* Ago (Mech ed) 89:231-3 My '15
- Iron caboose with steel center sills. *I* *diag*s plan *Ity* Ago (Mech ed) 89:25-8 Ja '15
- Steel frame caboose, Buffalo, Rochester & Pittsburgh *Ity*. *I* *diag*s *Ity* R 56:270-2 F 27 '15
- Steel frame double truck caboose, Buffalo, Rochester & Pittsburgh. *I* *diag*s plan *Ity* Ago (Mech ed) 89:301-1 Je '15

Cars, Chapel. *See* Chapel cars

Cars, Derrick

- Derrick car for elevated-railway reconstruction. J. M. Ryan. *I* *diag* *Eng N* 73:986-7 My 20 '15

Seventy-nine-ton derrick car lowers track 50 feet in twenty-five minutes. A. S. Beale. *I* *Eng Rec* 72:78-9 J 17 '15

Cars, Dining. *See* Dining cars

Cars, Freight. *See* Freight cars

Cars, Hospital. *See* Hospital cars

Cars (Inspection)

- Conducting track inspection on the Grand Trunk. *I* *Ity* Ago 57:1115-7 D 18 '14

Cars, Kitchen. *See* Kitchen cars

Cars (Line)

- Pillar crane car for track work. E. M. T. Ryder. *I* *Elec* *Ity* J 46:763 Ap 17 '15
- Three-in-one car. E. C. Sherwood. *I* *diag* *Elec* *Ity* J 46:1121-3 Je 12 '15

Cars, Military

- New war cars for our army. *I* *Sci Am* 113:38 J 31 '15

Cars, Refrigerator. *See* Refrigerator cars

Cars (section)

- Efficiency of motor cars for section forces. G. R. Morrison. *Ity* Ago 56:227-8 S 11 '15; Same. *Ity* R 57:345-6 S 11 '15

Cars (spreader)

- Improvements in bank spreader cars. *Ity* R 56:134 Mr 27 '15

Cars, Steel

- All-steel cars for London & Port Stanley railway. *I* *Elec* *Ity* J 46:27-8 J 1 3 '15
- All-steel one-man car. *I* *Elec* *Ity* J 46:72 3 J 1 '15
- All-steel passenger cars for the Pacific electric railway. E. E. Small. *I* *diag*s *Elec* *Ity* J 46:488-92 S 18 '15
- American steel cars built for Russian railways. *I* *Eng N* 74:951 N 11 '15
- Analysis of stresses in Chicago elevated steel car. H. A. Johnson. *diag* *Elec* *Ity* J 44:1799-1800 D 12 '14
- British all-steel kitchen cars. *I* *diag*s *Ity* Ago (Mech ed) 89:178-82 Ap '15
- Center-entrance cars for suburban service. *I* plan *Elec* *Ity* J 46:282-4 Ag 14 '15
- Considerations affecting the type of center sills in steel passenger equipment. L. K. Hilcox. *diag*s *Ity* Ago (Mech ed) 89:227-31 My '15

Cars, Steel—Continued

- Design and operation of the new shop for building steel freight and passenger cars of the Canadian Pacific Ry., at Montreal. L. C. Ord. *ii* diag plan Eng & Contr 42:406-11 O 28 '14
- Design of steel passenger equipment. V. W. Zillen. *diag* Ry Age (Mech ed) 89:459-61, 615-16 S-O '15
- Jersey Central steel baggage and mail equipment. *ii* diag Ry Age 58:301-4 F 19 '16; Same. Ry Age (Mech ed) 89:123-7 Mr '15
- Jersey Central steel passenger cars. *ii* diag plan Ry Age (Mech ed) 88:625-9 D '14
- Light-weight car for Cleveland & Eastern traction company. *ii* Elec Ry J 46:30-1 J1 3 '15
- Light-weight steel interurban car of the Toledo, Fostoria & Findlay railway. *ii* plan Elec Ry J 45:947-8 My 15 '15
- Long Island railroad adopts light, steel trailers. *ii* diag Elec Ry J 46:136-8 J1 24 '15
- Long Island steel suburban cars. *ii* diag Ry Age (Mech ed) 89:103-6 Ag '15; Same. Ry Age 59:241-4 Ag 6 '15
- New subway and elevated car of the New York municipal railway corporation. *ii* diag Ry J 56:208-13 F 13 '15
- Northern Pacific passenger cars. *ii* diag Ry Age (Mech ed) 89:517-22 O '15; Same cond. Ry Age 59:733-7 O 22 '15
- Plant for sandblasting steel cars. *diag* Ry Age 59:397-8 Ag 27 '15; Same. Ry Age (Mech ed) 89:427-8 Ag '15
- Pressed-steel cars for the Chicago elevated. *ii* diag Elec Ry J 44:1234-9 D 5 '14
- Railway safety and railway economies. Sci Am 112:46 Jan 9 '15
- Riveting in steel car construction. H. A. Hatfield. *ii* diag Ry Age (Mech ed) 89:33-6, 87-90 Jan 9 '15
- Sand blasting steel cars. *diag* Ry Age (Mech ed) 89:376-7 J1 '15; Same cond. Ry Age 59:104-5 J1 16 '15
- Steel and steel underframe passenger train equipment; statistics of progress and cost. Ry J 56:705 My 22 '15; Ry Age (Mech ed) 89:299-300 Jo '15
- Steel car design from a protection standpoint. J. D. Wright. Ry Age (Mech ed) 89:525-6 O '15
- Steel cars for Chicago & Milwaukee electric railroad. *ii* diag Elec Ry J 46:388-91 S 4 '15
- Steel cars of the arch roof type. *ii* diag plans Ry Age (Mech ed) 89:319-54 J1 '15
- Steel coaches for the Santa Fe. *ii* diag Ry Age (Mech ed) 89:21-5 Ja '15
- Steel dynamic-baggage cars for the Union Pacific R. R. *ii* diag Ry J 56:460 Ap 3 '15
- Steel parlor cars for Waterloo-Cedar Rapids line. *ii* plan Elec Ry J 46:932-4 My 15 '15
- Steel passenger equipment for the Union Pacific. *ii* diag Ry Age 58:1475-9 Jo 25 '15
- Steel suburban cars for the Erie. *ii* diag Ry Age (Mech ed) 89:356-8 J1 '15; Elec Ry J 46:1102-5 Jo 12 '15; Eng N 73:1142-4 Jo 10 '15; Ry Age 58:1243-5 Jo 11 '15
- Stress analysis of the Chicago steel car. W. Kettler and M. G. George. *diag* Ry J 45:201-2 F 6 '15

Painting**New Car painting****Repair**

- Steel cars on the Long Island. *ii* Elec Ry J 46:566-70 Mr 20 '15

Cars, Subway

- Electrical equipment of Belmont tunnel cars. *ii* Elec Ry J 46:764-5 Ap 17 '15
- New subway and elevated car of the New York municipal railway corporation. *ii* diag Ry J 56:208-13 F 13 '15

Carbon lake

- Unwatering Carson lake. L. D. Davonport. *ii* map Eng & Min J 98:1069-70 D 19 '14

Cartels. See Trusts, Industrial**Cartography. See Maps****Cartoons. See Caricatures and cartoons****Cartridge cases**

- Annealing of brass cartridge cases. L. J. Krom. *ii* diag Metal Ind n s 13:359-63 S '15
- Making cartridge cases. D. T. Hamilton. *ii* diag Mach 21:651-6 Ap '15; *Excerpt. Sci Am S* 80:29-30 J1 10 '15

Cartridges

- Cartridges for war. E. C. Crossman. *Sci Am* 113:219+ S 4 '15

See also Bullets**Carty, J. J.**

- Portrait. *Power* 42:66 J1 13 '15

Case hardening

- Carburizing and heat-treatment. J. G. Ayers, Jr. *ii* Mach 22:17-23 S '15
- Case-hardening process for tool steel. R. A. Millholland. *Metal Work* 84:688-9 N 26 '15; Same. *Iron Age* 96:1168-7 N 18 '15
- Case-hardening retorts and furnaces. R. A. Millholland. *ii* *Iron Age* 96:1111-14 N 11 '15
- Gas as a case-hardening agent. A. H. White and H. T. Wood. *bibliog ii Am Gas Light J* 103:259-63, 266 O 25 '15
- Materials employed in case hardening. R. A. Millholland. *Iron Age* 96:1041-2 N 4 '15
- Protection of parts in case hardening. *Iron Age* 95:304-5 F 4 '15
- Use of copper electrolyte in localized case-hardening. W. Paxton. *diag Mach* 21:499 F '15

See also Steel, Hardening of**Cast iron**

- Aluminum or iron crank cases; a comparison of the two materials on the bases of weight, strength and cost. V. I. Moncrieff. *Horseless Age* 35:582-3 Ap 28 '15
- Annealing effect on light gray iron castings. G. S. Evans. *ii* *Foundry* 43:219-21 Jo '15
- Annealing gray iron castings. *ii* *Foundry* 43:188 My '15
- Chill and shrinkage of cast iron. R. A. Pittman. *Foundry* 43:304 Ag '15
- Control of chill in cast iron, considering the elements effective in the manufacture of malleable castings and chilled car wheels. G. M. Threshor. *ii* *Am Inst Min J Bul* 106:2129-38 O '15; Same. *Foundry* 43:491-3+ D '15; Same. *Iron Tr R* 57:1171-3 J1 16 '15; *Excerpt (Natural chill of cast iron). Met & Chem Eng* 13:39-40 Ja '15
- Corrodibility of cast iron and steel. J. N. Friend and C. W. Marshall. *Iron Age* 95:1114-15 My 20 '15
- Corrosion of steel and cast iron compared. R. C. McWane and H. Y. Carson. *ii* *Foundry* 43:167-9 N '15
- Evolution of the malleable process. J. P. Poro and J. C. Nilsen. *Iron Age* 96:1168-70 N 18 '15
- Hard iron. W. J. Keop. *Foundry* 43:350 S '15
- Malleable castings specifications. *diag Iron Tr R* 57:46-7 J1 1 '15
- Malleable iron castings for the automobile industry. H. Moldenke. *Horseless Age* 35:69-73 Ja 13 '15; Same. *Iron Tr R* 56:221-4; *Discussion. E. Touceda. 56:224 J1 28 '15*
- Manufacture and uses of malleable iron. J. P. Poro. *Foundry* 43:141-3 Ap '15
- Phosphorus in malleable castings. E. Touceda. *ii* *Iron Tr R* 57:634-6 S 30 '15; Same. *Foundry* 43:446-9 N '15; Same cond. *Iron Age* 96:924-6 O 21 '15
- Physical properties vs. analysis. W. J. Keop. *Foundry* 43:120 Mr '15
- Practice of the oxy-acetylene welding process. S. W. Miller. *ii* *Mach* 22:108-17 O '15
- Recent developments in cast-iron manufacture. J. E. Johnson, Jr. *J R Inst* 179:59-63, 171-200 Jan 16 '15; *Discussion. 179:200-13 F '15*
- Researches in annealing malleable castings. G. W. Storey. *ii* *Foundry* 42:474-8 J1 '14
- Specifications for malleable iron. E. Touceda. *Iron Tr R* 56:615-16 Mr 25 '15
- Standard specifications for the foundryman. *Foundry* 43:258-81 J1 '15
- Sulphur in malleable cast iron. H. H. Smith. *Iron Age* 96:1235 N 25 '15
- Surface of molten cast iron. H. A. Pittman. *Foundry* 43:365 S '15
- Vanadium from oxide to steel. W. F. Bleeker and W. L. Morrison. *Met & Chem Eng* 13:492-4 Ag '15

Cast iron—Continued

Varying silicon and carbon. A. L. Pollard. *Iron Age* 96:121 Ja 7 '15

See also Car wheels; Chilled iron; Foundry practice; Iron; Iron foundings; Iron metal-lurgy; Pig iron; Spiegeleisen

Testing

Bending elasticity of cast iron. A. Ono. *Am Soc M E J* 37:290-1 My '15

Tentative methods—sampling pig and cast iron. *Foundry* 43:250-60 Jl '15

Testing the hardness of iron castings. C. S. Evans. *Il diag Iron Age* 96:8-10 Jl 1 '15

Tests of malleable iron after skin has been removed. L. Toudon. *Il Iron Tr R* 65:584-6+ S 24 '14; Same. *Foundry* 43:13-15 Ja '15;

Same cond. *Iron Age* 94:948-50 O 22 '14; Abstract. *Am Soc M E J* 36:0196-7 O '14

Tests of vanadium iron castings. *Il Foundry* 43:179-80 My '16; Same. *Iron Tr R* 67:221-2 Jl 29 '15

Tests on the combined bending and torsional strength of cast iron. T. Matsumura and G. Hamabe. *Am Soc M E J* 37:317 Jo '15

Cast

Preserving casts in English hospitals. *Sci Am S* 80:326 N 20 '15

Casting machines

Continuous casting machine. R. C. Patterson. *Il diag Metal Ind n s* 13:254-5 Jo '15

Continuous rod casting machine. *Il Sci Am* 113:165+ Ag 21 '15

Continuous rod-casting process; construction and operation of a casting machine designed to simplify the manufacture of rods and wire. R. K. Hammond. *Il diag Mach* 21:765-7 My '15

Cost of casting machines for converter plant. H. I. Jones. *Am Inst Min E Bul* 91:504-5 Jl '14; Same. *Eng & Min J* 98:1047-8 D 12 '14

Mullen rod-casting machine. R. C. Patterson. *Il Am Inst Min E Bul* 101:919-25 My '15;

Same. *Iron Age* 95:996-8 My 6 '15; Same. *Iron Tr R* 67:446-7 S 2 '15; Abstract. *Am Soc M E J* 37:316-7 Jo '15; Abstract. *Eng M* 49:593-4 Jl '15

Castles

Plans and elevations for a castle. J. W. Morton. *Bldg Age* 37:51-6 O '15

Castor beans

Studies on enzyme action: the esterase and lipase of castor beans. K. G. Folk and K. Suglura. *Am Chem Soc J* 37:217-30 Ja '15

Studies on enzyme action; some experiments with castor bean urease. K. G. Folk and K. Suglura. *Am Chem Soc J* 36:2166-70 O '14

Castor oil

Physical qualities of castor oil. P. G. McVetty. *Automobile* 33:500-1 S 16 '15

Casts, Plaster. *See* Plaster casts**Cataloging**

See also Classification; Indexing

Catalogs

Goods that give service which draws trade. *Il diag Metal Work* 83:27-36 Ja 1 '15

How to sell a catalogue. L. C. Fay. *Inland Tr* 55:104-6 Ap '15

Trade catalogues—few are useful as now prepared. P. B. Tallman. *Eng Rec* 71:497 Mr 27 '15

Catalysis

Catalysis in the gas industry. *Sci Am S* 79:126 F 20 '15

Catalytic agents: their relation to modern methods. *Sci Am S* 80:253 Jl 24 '15

Hydrogenation of oils and soft fats. *Sci Am S* 80:99 Ag 14 '15

Influence of temperature in acid catalysis. H. S. Taylor. *Am Chem Soc J* 37:551-7 Mr '15

Nature of the catalysis in the conversion of the cinchon alkaloids into their toxins. H. C. Biddle. *Am Chem Soc J* 37:2088-2112 S '15

One of the mysteries of chemistry. *Sci Am S* 78:367-8 D 5 '14

Rate of conversion of cinchonidine into cinchotoxine. H. C. Biddle and R. H. Butzbach. *Am Chem Soc J* 37:2082-7 S '15

Rate of conversion of cinchonine into cinchotoxine. H. C. Biddle and O. L. Brauer. *Am Chem Soc J* 37:2065-82 S '15

Reactions of sodium ethylate with methyl iodide in absolute ethyl alcohol at 25°. J. C. Robertson, Jr. and S. E. Acree. *Am Chem Soc J* 37:1902-9 Ag '15

Interpretation of the reactions of sodium methylate and sodium ethylate with 1, 2-dinitrobenzene, and 1, 2, 4-dinitrochlorobenzene and 1, 2, 4-dinitrobenzene. S. E. Acree. *Am Chem Soc J* 37:1909-14 Ag '15

See also Colloids

Bibliography

Bibliography of the chemistry of gas manufacture. W. F. Rittman and M. C. Whitaker. *U S Bur Mines Tech Pa* 120:17-20 '15

Catch basins. *See* Sewerages—Catch basins

Catenary construction. *See* Electric railroads—Construction

Caterpillar tractors. *See* Tractors

Caterpillars

Fighting caterpillars with steam. *Il Sci Am* 112:104 Ja 30 '15

Cathode ray tube

Cathode ray tube and its application. M. E. Tressler. *Il diag Gen Elec R* 18:116-20 Ag '15

Characteristics of cathode ray tubes. J. P. Minton. *Il diag Gen Elec R* 18:636-40 Jl '15

Investigation of dielectric losses with the cathode ray tube. J. P. Minton. *Il Am Inst E E Pro* 31:1115-65 Jo '15; Abstract. *Elec W* 60:86 Jo 10 '15

Cathode rays

Cathode rays and their properties. J. P. Minton. *Il diag Gen Elec R* 18:118 25 F '15

Salts colored by cathode rays. E. Goldstein. *Sci Am S* 79:318-19 My 15 '15

See also Electrons; X rays

Catskill aqueduct

Brass in water works construction with special reference to experience on the Catskill aqueduct; abstracts. A. D. Flinn. *Eng & Contr* 43:67-8 Ja 20 '15; Metal Ind n a 12:500 2 D '14;

Muncie J 3:322-4 D 21 '14

Building the earth embankment for Hill View reservoir. A. W. Todd. *Il plan Eng S* 11:500-5 S 9 '15

Cast iron submarine aqueduct. *Il diag Eng Rec* 120:176-8, 180 Ag 20 '15

Catskill aqueduct (continued). *Il diag Muncie J* 38:78 9 My 27 '15

City tunnel of the Catskill aqueduct. W. E. Spear. *Il diag plan Eng S* 11:500, 98-103, 106-53, 194 S Ja 11 F 4 '15; Excerpt. *Eng M* 18:598 900 Mr '15

Design and cost of concrete pipe used along Catskill aqueduct. *Il diag Eng & Contr* 43:287-8 Mr 31 '15

Electrically operated contractor's plant for building Kensico dam. A. W. Carroll. *Il Eng Rec* 71:18 20 Ja 2 '15

Narrow flexible joint submarine siphon. J. P. Hogan. *Il diag plans Eng Rec* 70:66 9 D 19 '14

Plant and methods employed in laying the flexible jointed Narrows siphon of the Catskill aqueduct. S. W. Symons. *Il Eng & Contr* 43:218 15 Mr 10 '15

Tunnel, 400 feet below existing one, reduces short section of damaged Catskill siphon. *Il diag Eng Rec* 71:514-16 Ap 24 '15

Twenty-ton valve lowered down 250 foot shaft in 20 min. R. W. Greenlaw. *Il Eng Rec* 71:181 F 6 '15

Water main under New York harbor from Brooklyn to Staten Island. J. P. Schuyler. *Il diag Muncie Eng Rec* 19:37 5 S '15

Yardage record at Kensico dam due, in part, to operation of mixer. G. T. Newbury. *Eng Rec* 71:199 F 13 '15

Buildings

Synthetic stone as used in the construction of Catskill aqueduct buildings. H. L. Rogers. *Il diag Concrete Con* 6:125 8, 132-3 Mr '15; Abstract. *Eng M* 49:272 My '15

Cattle dips. *See* Dipping fluids, Attention!

- Caucasus**
Copper smelting in the Caucasus. map Eng & Min J 99:650-3 Ap '15
In and out of the Caucasus in war time. L. C. David. II Eng & Min J 99:477-80 Mr '15
- Causeways**
Builders of the Galveston causeway tell of the storm's effect. Eng Rec 72:276 Ag 28 '15
Galveston survives hurricane. II map Eng N 74:424-6 Ag 26 '15
Galveston's sea-wall checks hurricane's devastation. E. B. Van de Greyn. II diag Eng Rec 72:271-5 Ag 28 '15
- Caves**
Cave deposit. G. J. Young. diag Econ Geol 10: 186-90 F-Mr '15
- Cedar**
Spanish cedar. II Sci Am S 78:372-3 D 12 '14
Western red cedar men meet. Elec R & W Elec N 66:164 Ja 23 '15
See also Northern white cedar association
- Cedar Rapids, Iowa**
Bridges
Construction features of the duplicate reinforced concrete arch bridges at Third ave., Cedar Rapids, Iowa. diag Eng & Contr 42:148-50 Ag 12 '14
- Cedars Rapids, Quebec**
Cedar hydro-electric development. St. Lawrence river. II diag plan Eng N 73:566-73, 611-13 Mr 25-Apr 1 '15
- Ceilings**
Lighting of rooms through translucent glass ceilings; with discussion. R. J. Edwards. II Illum Eng Soc 9:1011-20 no 9 '14
See also Mural painting and decoration; Plaster and plastering
- Celestial globes**
Celestial globe and tellurian. II Sci Am 113: 61 J1 17 '15
- Cello canal**
Connecting Idaho with the sea; completion of the Cello canal along the Columbia river. R. W. Vincent. II Sci Am 112:476 My 22 '15
- Cells**
Thermal insulation of high-temperature equipment. P. A. Boeck. diag Am Inst Min 12 Bul 104:1539-50 Ag '15; Discussion. 108: 2513-19 J1 '15
- Cellars**
How to drain low cellar. plan Dom Eng 72: 201 Ag 12 '15
Storage cellar built of concrete. P. H. Wilson. II Bldg Age 37:64 Mr '15
See also Basements
- Cellon**
Substitute for glass in automobiles. Sci Am 112:401 My 1 '15
- Cellulose octacetate**
Isomeric alpha and beta octacetates of mal- tose and of cellose. C. S. Hudson and J. M. Johnson. Am Chem Soc J 37:1276-80 My '15
- Cells**
Cultivation of living tissues outside the body. Sci Am 8 79:147 Mr 6 '15
- Celluloid**
Contributions of the chemist to the celluloid and nitrocellulose industry. R. C. Schupp- haus. J Ind & Eng Chem 7:290 Ap '15
- Cellulose (hydrate)**
New casing for sausages. W. P. Colton. Id. C. Fox and A. J. Acton. Sci Am 112:235+ Mr 6 '15
- Cement**
Accounting for cement packages. G. Wilson. J Account 19:198-205 Mr '15
Air analyzer for determining the fineness of cement. J. C. Pearson and W. H. Sligh. II diag U S Bur Stand Tech Pa 48:1-74 '15; Abstract. Eng & Contr 44:352-3 N 8 '15; Excerpt. Eng N 74:475 S 2 '15; Summary. J R Inst 179:712-14 Jo '15; Summary. Eng Rec 71:737 Jo 12 '15
Cement market in Dominican republic. Concrete Cem 6:21 Ja '15
Chemical similarities of hydraulic cements, and reflections thereon. G. B. Upton. Sibley J 20:220-2 Ap '15
- Contributions of the chemist to the cement industry. G. S. Brown. J Ind & Eng Chem 7:277-8 Ap '15
Decade's change in output of cementing materials. R. C. Buckel. Eng Rec 70:704 D 26 '14
Electric motors in the Portland cement industry. Elec W 66:111 Ja 9 '15
Finer grinding and higher SO₂ in Portland cement. P. H. Bates. Eng N 74:138-9 J1 15 '15
High-strength concretes produced through lowering of surface tension of mixing water. N. C. Johnson. II Eng Rec 71:320-1 Mr 13 '15
Hydration of Portland cement. A. A. Klein and A. J. Phillips. pls U S Bur Stand Tech Pa 43:3-71 '14
Investigation of the durability of cement drain tile in alkali soils. R. J. Wig and C. M. Williams. diag pls U S Bur Stand Tech Pa 44:1-56 '15; Excerpts. Concrete Cem 7:145-7 O '15
Magnesia cement. C. H. B. Burton. Engineer 119:471-2 My 14 '15
Mechanical features of the hydration of Portland cement and the making of concrete as revealed by microscopic study. N. C. Johnson. II Am Soc M 10 J 37:516-25 S '15; Abstracts. Eng M 49:744-5 Ag '15; Am Gas Light J 103:283-4 N 1 '15; Discussion. Am Soc M 10 J 37:525-8 S '15
Petrographic study of Portland cement. R. J. Colony. bibliog II Sci Mines Q 36:1-21 N '14
Probable life of Portland cement stucco on metal fabric. Concrete Cem 7:151-5 O '15
Reduced production of Portland cement in 1914. Eng Rec 71:44 Ja 9 '15
Standardization of no. 200 cement sieves. R. J. Wig and J. C. Pearson. pls U S Bur Stand Tech Pa 42:1-51 '14
Statement of losses of cement at various prices; table. A. Moyer. Eng Rec 71:783-4 Jo 18 '15
Using bulk cement on railway construction work. M. D. Campbell. II Hy Age 58:1441-3 Jo 18 '15
Why is a barrel the unit of cement measure? Concrete Cem 7:83 Ag '15
See also Concrete; Dental cements; Guniting; Lime; Mortar; Pavements; Stucco; also headings beginning Cement
- Exhibitions**
Annual cement show at Chicago. II Bldg Age 37:59-63 Mr '15
- Patents**
Co-operation in small building development. P. H. Rosworth. Concrete Cem 6:42 Ja '15
- Specifications**
Standard specifications for cement. Am Gas Light J 103:126 Ag 23 '15
- Testing**
See Cement testing
- Cement bags.** See Cement sacks
- Cement clinker**
British Portland cement making machinery; cooling of cement clinker. diag Engineer 120:126-8 Ag 6 '15
Constituents of Portland cement clinker. (1. A. Itankin. J Ind & Eng Chem 7:460-74 Jo '15
Function of ferric oxide in the formation of Portland cement clinker. (2. D. Campbell. II J Ind & Eng Chem 7:835-7 O '15
- Cement gun**
Cement gun for relining old brick and ashlar sewers. L. Chivvis. II Eng N 74:339-40 N 11 '15
Cement-gun furnace repairs. Eng & Min J 99:866, My 15 '15
Dry, coarse sand best for cement gun in wet climate. Eng Rec 72:491 O 16 '15
Experience with cement guns in levee re- tement. W. C. Cuples. Eng & Contr 44:397-8 N 17 '15
- Cement kilns**
British Portland cement making machinery. II diag Engineer 119:373-4, 498-9; 120:81-2 Ap 16, My 21, J1 23 '15

Chemical engineering—Continued

Chemical engineering versus engineering chemistry. C. S. Palmer. *Met & Chem Eng* 13: 203 Ap '15

Columbia university establishes a separate department of chemical engineering. *Met & Chem Eng* 13:475-6 Ag '15

Co-operation between university and industry. *Met & Chem Eng* 13:885-7 D 1 '15

See also Chemistry, Technical; Drying; Metallurgy; Waste products

Chemical engineers, American Institute of. See American Institute of chemical engineers

Chemical engines. See Fire engines, Motor

Chemical equilibrium

Equilibrium between carbon oxysulfide, carbon monoxide and sulfur. G. N. Lewis and W. N. Lacy. *diag Am Chem Soc* J 37:1978-83 S '15

Equilibrium in the system: lead acetate, lead oxide, and water, at 25°. R. F. Jackson. *Am Chem Soc* J 36:2346-57 N '14; *Summ. U S Bur Stand Bul* 11:331-45 My 10 '15

Chemical industries

Accident prevention in the chemical industries. R. W. Keough. *Met & Chem Eng* 13:731-4 O 15 '15; *Excerpts. Am Ind* 10:23-4 N '15

Aspects of some chemical industries, in the United States, today. R. Gudeman. *J Ind & Eng Chem* 7:151-5 F '15

Chemical industries of Austria-Hungary and the war; abstract. J. Donath and G. Ulrich. *Met & Chem Eng* 13:639-40 S '15

Chemical industries of Germany. P. K. Frankland. *Met & Chem Eng* 13:378-87 Je '15; Same. *Sci Am* 8 79:389-90, 402-3 Je 10-26 '15

Chemical industry and German competition. *Engineer* 119:90 Ja 22 '15

Chemical trade and the war. *Engineer* 120:379 O 22 '15

Chemical trade of the United States in 1914. *J Ind & Eng Chem* 7:629-30 J1 '15

Chemical trade situation in Germany and Great Britain. *Met & Chem Eng* 13:559-61 Ja '15

Coal-tar chemical industry in Germany and America. *Sci Am* 8 80:240 O 9 '15

Co-partnership in chemical industries. W. H. Laver. *Engineer* 120:91 J1 23 '15

Developments in German-American trade in chemicals. *J Ind & Eng Chem* 7:73 Ja '15

Doping without Europe. *Sci Am* 112:176 F 20 '15

Effect of the war on American industries. R. K. Pratt. *Sci Am* 112:230 S 11 '15; Same cond. (Opportunities for the American chemical industry) *Met & Chem Eng* 13:729-31 O 15 '15

Effect of the war upon the American chemical industries. J. H. Janow. *Eng Soc W Pa* 31:381-400; Discussion. 31:400-16 Je '15

Foreign markets for American chemicals. T. H. Norton. *Met & Chem Eng* 13:768-62 O 15 '15

German chemical industry and the war. *Eng & Min J* 99:774-5 My 1 '15

Government co-operation with our industries. *Sci Am* 112:99 Ja 20 '15

Hearing of the proposed amendment of the patent laws. L. H. Backlund and others. *Met & Chem Eng* 13:78-81 F '15

Manchester meeting of the Society of chemical industry. *Met & Chem Eng* 13:548-6 N 1 '15

Report of the Chemical and dyestuff committee of the New York section of the American chemical society. *Met & Chem Eng* 12:763-6 D 14

Research and industry. *Sci Am* 112:916-17 Je 19 '15

Resources and possibilities of chemical industry in the Southwest. H. Baruch. *Met & Chem Eng* 13:604-8 S 15 '15

Status of the chemical industries in the United States at the end of 1915. I. W. Stone. *J Ind & Eng Chem* 7:991-3 N '15; Same. *Sci Am* 8 80:286-7 O 30 '15; Abstract. *Met & Chem Eng* 13:710, 828 O 15, N 15 '15

War and our chemical industries; symposium; with discussion. *J Ind & Eng Chem* 7:59-64 Ja '15

War and the chemical industry. W. H. Nichols. *J Ind & Eng Chem* 7:131-6 F '15

War and the chemical trade. *Engineer* 119:115 Ja 29 '15

What Germany is doing in the chemical and metallurgical industries. *Eng & Min J* 99: 829 My 8 '15; Same cond. *Sci Am* 8 80:5 J1 3 '15

See also Chemical research; Chemicals; Chemistry, Technical; Dye industry; Potash

Exhibitions

National exposition of chemical industries; summary of exhibits and lists of papers read. 1) *Met & Chem Eng* 13:690-700, 734-5 O 1-15 '15

Chemical industries, National exposition of. See National exposition of chemical industries

Chemical industry, Society of. See Society of chemical industry

Chemical laboratories

Chemical department of the Illinois traction system. N. R. Beagle. *Elec Ry J* 45:423 F 27 '15

Chemical patents

Application for and prosecution of applications for United States letters patent. S. C. Mastick. *J Ind & Eng Chem* 7:874-83 O '15

Coal-tar dyes and the Patric bill; compulsory working of patents. B. C. Hesse. *J Ind & Eng Chem* 7:963-74; Discussion. 11. M. Stonebraker; 13. G. Hesse. 7:974-8 N '15

Contractual rights relating to letters patent; Actions for infringements. S. C. Mastick. *J Ind & Eng Chem* 7:984-91 N '15

Hearing of the proposed amendment of the patent laws. L. H. Backlund and others. *Met & Chem Eng* 13:78-81 F '15

Theory and statement of the law relating to patents generally and to patents for compositions of matter and chemical processes specifically. S. C. Mastick. *J Ind & Eng Chem* 7:789-97 S '15

Chemical reaction

Action of trioxymethylene on *p*-xylene in the presence of aluminum chloride. R. C. Hutton and J. T. Ewing. *Am Chem Soc J* 37: 2394-9, 2401 O '15

Addition compounds of organic substances with sulfuric acid. J. Kendall and G. D. Carpenter. *Am Chem Soc J* 36:3398-517 D '14

Chemical reactions at low pressures. I. Langmuir. *Am Chem Soc J* 37:1139-67 My '15; Abstract. *J Ind & Eng Chem* 7:349-51 Ap '15

Abstract. *Met & Chem Eng* 13:244-6 Ap '15

Chemical reactions in anhydrous hydrazine. T. W. H. Welsh and J. J. Braderson. *diag Am Chem Soc J* 37:825-32 Ag '15

Electron conception of valence: the theory of electrolytic dissociation and chemical action. K. G. Palk and J. M. Nelson. *Am Chem Soc J* 37:1732-48 J1 '15

Interaction of hydrogen and chlorine under the influence of alpha particles. H. S. Taylor. *diag Am Chem Soc J* 37:24-38 Ja '15

Oxidation and reduction without the addition of acid; the reaction between ferrous sulfate and potassium dichromate. M. Nollé and J. G. Witt. *Am Chem Soc J* 37:2360-8 O '15

Reactions in liquid ammonia. R. C. Franklin. *Am Chem Soc J* 37:2279-95 O '15

Reactions of sodium ethylate with methyl iodide in absolute ethyl alcohol at 25°. H. C. Robertson, Jr. and S. F. Acree. *Am Chem Soc J* 37:1802-9 Ag '15

Reinterpretation of the reactions of sodium methylate and sodium ethylate with 1, 2-dinitrobenzene, and 1, 2, 4-dinitrobenzene and 1, 2, 4-dinitrobenzene. S. F. Acree. *Am Chem Soc J* 37:1900-14 Ag '15

Study of the reactions of sodium malonate. C. L. Jackson and P. C. Whitmore. *Am Chem Soc J* 37:1523-27, 1915-34 Jr. Ag '15

Theory of chemical reaction and reactivity. R. C. Baly. *Am Chem Soc J* 37:1979-93 My '15

See also Chemical reagents

Chemical reagents

Nephelometric estimation of phosphorus. P. A. Kober and G. Karger. *Am Chem Soc J* 37: 2373-81 O '15

Reagents for use in gas analysis; alkaline pyrogallol. R. P. Anderson. *diag J Ind & Eng Chem* 7:587-96 J1 '15

Chemical reduction. See Reduction, Chemical

Chemical research

Cooperation in matters chemical; presidential address. C. H. Herty. *Am Chem Soc J* 37: 2231-46 O '15

Development of chemical research in America. I. Remsen. *Am Chem Soc J* 37:1-7 Ja '15

Research in chemical industry. C. F. Burgess. *Met & Chem Eng* 13:921 D 1 '15

See also Chemical laboratories; Chemistry, Technical

Chemicals

Advance in chemical prices due to the war. *Eng & Min J* 100:331 N 20 '15

Balance of trade in chemicals between the United States and Germany in 1913. *J Ind & Eng Chem* 6:1034-5 D '14

See also Chemical industries

Statistics

Need of revised chemical statistics. B. C. Hesse. *J Ind & Eng Chem* 7:68-9 Ja '15

Chemistry

See also Acids; Air; Alkalies; Assaying; Atomic weights; Atoms; Catalysis; Combustion; Crystallography; Dissociation; Earths, Rare; Electrochemistry; Evaporation; Gases; Hydrates; Indicators and test papers; Ions; Metallurgy; Photochemistry; Radioactivity; Reduction, Chemical; Salts; Spectrum analysis; Solution (chemistry); Stereochemistry; Substitution (chemistry); Thermochemistry; also headings beginning Chemical and names of chemical elements and substances

Apparatus

See Chemical apparatus

Study and teaching

Recent tendencies in high school chemistry. R. H. Bradbury. *J Fr Inst* 180:449-61 O '15

Chemistry, Analytic

Electro-titrimetric method and its application to general analytical chemistry. F. H. Hoeselink van Suchtelen and A. Ijzerman. *Am Chem Soc J* 36:1793-1803 S '14

Influence of hydroxy acids and lactones upon determinations of the chemical constants of fatty acids. C. A. Browne. *J Ind & Eng Chem* 7:330-4 Ja '15

Results of some co-operative work on determination of sulfur in pyrites. H. C. Moore. *J Ind & Eng Chem* 7:634-6 J1 '15

Two methods of separation of the metals of the alkaline-earth group. A. G. Patterson. *Am Chem Soc J* 37:2346-52 O '15

Use of the interferometer for the analysis of solutions. L. H. Adams. *diag Am Chem Soc J* 37:1181-94 My '15

See also Assaying; Drugs—Analysis; Electrolysis; Gas analysis; Graining-copper method; Soil analysis; Volumetric analysis; also names of substances analyzed, a. g. Coal—Analysis, Steel—Analysis, Water—Analysis

Qualitative

Qualitative test for water by the use of the acetylene-cuprous chloride reaction. H. H. Wouwer. *Am Chem Soc J* 30:2402-8 D '14

Quantitative

Comparative study of methods for the quantitative determination of sulfur in peptone. H. W. Redfield and C. Huckle. *Am Chem Soc J* 37:807-11 Mr '15

Gibbs medal award; address of acceptance. A. A. Noyes. *J Ind & Eng Chem* 7:460-1 My '15

Nephelometry (photometric analysis); history of method and development of instruments. F. A. Kober and S. S. Graves. *diag J Ind & Eng Chem* 7:843-7 O '15

Quantitative determination of fluorine. W. H. Adolph. *diag Am Chem Soc J* 37:2500-15 N '15

Quantitative determinations of sulfur in the culture medium for the detection of the bacteria producing hydrogen sulfide. H. W. Redfield and C. Huckle. *Am Chem Soc J* 37: 612-23 Mr '15

Chemistry, Biological. See Biological chemistry

Chemistry, Inorganic

Recent work in inorganic chemistry. J. L. Lowe. *Am Chem Soc J* 37:538-49 Mr '15

See also Metals

Chemistry, Medical and pharmaceutical

Contributions of the chemist to the manufacture of pharmaceutical products. F. H. Eldred. *J Ind & Eng Chem* 7:939-40 N '15

See also Drugs—Analysis

Chemistry, Organic

Electrochemical production of organic compounds. *Met & Chem Eng* 13:211-13 Ap '15

See also Acids, Fatty; Alcohols; Aldehydes; Essential oils; Esters; Gas; Hydrocarbons; Ketones; Proteins

Chemistry, Photographic. See Photographic chemistry

Chemistry, Physical and theoretical

Gas manufacture from the point of view of physical chemistry. W. F. Rittman. *Am Gas Inst Pro* 9:pt 1, 288-300 '14; Same cond. *Am Gas Light J* 101:395-7 D 21 '14; Same cond. *J Ind & Eng Chem* 6:1037-30 D 1 '14; Discussion. *Am Gas Inst Pro* 9:pt 1, 300-4 '14

Salts colored by cathode rays. E. Goldstein. *Sci Am S* 79:318-19 My 15 '15

See also Atomic weights; Atoms; Boiling points; Catalysis; Chemical reaction; Colloids; Crystallography; Dissociation; Electrochemistry; Electrolysis; Electrons; Freezing points; Ions; Isomerism; Liquid air; Melting points; Molecular weights; Optical rotation; Photochemistry; Radioactivity; Solution (chemistry); Stereochemistry; Thermodynamics; Valence; Vapor density

Chemistry, Technical

America as her own chemist; first National exposition of chemical industries. *Sci Am* 113:302-4 O 3 '15

Applied chemistry. L. H. Backeland. *Met & Chem Eng* 13:677-82 O 1 '15; Same. *J Ind & Eng Chem* 7:978-81 N '15; Same. *Sci Am S* 80:294-5 N 6 '15

Chemical lime. *Sci Am S* 80:47-8 J1 17 '15

Contributions of the chemist to American industries; symposium. *J Ind & Eng Chem* 7:273-304, 931-45 Ap, N '15

Contributions of the chemist to the industrial development of the United States—a record of achievement. R. C. Hesse. *J Ind & Eng Chem* 7:293-304 Ap '15; Same. *Sci Am S* 79: 310-11, 334-5 Ap 3-10 '15; Abstract. *Met & Chem Eng* 13:287-8 My '15; Abstract, with discussion. *Textile World* 40:53-5, 74-5+ Ap '15

Contributions of the chemist to various American industries; symposium. *Met & Chem Eng* 13:283-8 My '15

Germany as nature's competitor. *Sci Am* 113: 442 N 20 '15

Industrial uses for liquid air. *Eng M* 49: 118-21 Ap '15

Problems of chemical industry. H. F. Bacon. *J Ind & Eng Chem* 7:635-8 Ja '15

Research and progress in American manufacture. H. F. Bacon. *Sci Am S* 80:334-6 N 20 '15

Society of chemical industry annual meeting. *Engineer* 120:91-2 J1 23 '15

Substitutes for metals, minerals and their products. *Eng M* 49:592-3 J1 '15

See also Acetylene; Alcohol, Denatured; Alkalies; Ammonia; Baking powder; Barium; Braving; Collodion; Cement; Chemical engineering; Chemical industries; Coal-tar colors; Coal-tar products; Corrosion and anti-corrosion; Cyanide process; Distillation; Dyes and dyeing; Electrochemistry; Essential oils; Explosives; Fuel; Gas; Gas mantle; Gas manufacture and works; Glucose; Gums and resins; Hydrometallurgy; Ink; Metallurgy; Oils and fats; Oxonol; Packing house products; Paint; Paper making and trade; Perfumery; Petroleum; Potash; Precious stones, Artificial; Precious stones, Synthetic; Refractory materials; Rubber; Rubber, Artificial; Soap; Sugar; Sulphuric acid; Tar; Textile industry and fabrics; Waste products; Wood distillation; Wood preservation

Chemists

- Applied chemistry. L. H. Baekeland. Met & Chem Eng 13:677-81 O 1 '15; Same, J Ind & Eng Chem 7:978-81 N '15; Same. Sci Am N 80:294-5 N 6 '15
- Coöperation in matters chemical; presidential address. C. H. Herty. Am Chem Soc J 37: 2281-46 O '15
- Development of chemical research in America. I. Remsen. Am Chem Soc J 37:1-7 Ja '15
- Plea for a chemists' protective association. R. G. Myers. J Ind & Eng Chem 7:798-801 S '15

Chesapeake & Ohio Northern railroad

- New line of the Chesapeake & Ohio Northern. diags map Ity Age 58:1017-18 My 14 '15
- Thirty miles of Chesapeake & Ohio Northern begun. map Eng Rec 72:300-1 S 4 '15

Chesapeake and Ohio railway

- 37th annual report. Ity Age 59:591-2, 624-6 O 1 '15

Chess player, Automatic

- Torres and his remarkable automatic devices. II diags Sci Am S 80:296-8 N 6 '15

Chester, Pennsylvania**Bridges**

- Balanced cantilever reinforced-concrete bridge. H. J. Quimby. II diags Eng N 73:578-81 Mr 25 '15

Chestnut

- American chestnut tree. S; B. Detwiler. II map Am For 21:957-60 O '15
- Chestnut in the future. Am For 21:967-8 O '15
- Commercial uses of chestnut. P. L. Buttrick. II Am For 21:960-7 O '15

Chicago, Illinois

- Chicago, the A. R. B. A. convention city. II Good Roads n s 8:199-203 D 5 '14
- Topography of the bed-rock under Chicago. R. Peattie. maps W Soc B J 19:590-4 Ja '14; Same cond. Eng & Contr 42:605-7 I 30 '14; Discussion. W Soc B J 19:594-611 Ja '14

See also Field museum of natural history

Architecture

- Chicago's 1914 progress in building. II Bldg Age 37:46-8 K '15
- Design and construction of the Chicago He-brew Institute: a reinforced concrete structure possessing unusual features. II plans Eng & Contr 43:558-63 Ja 23 '15

Bridges

- Design, construction and detailed labor costs of the substructure of the double-leaf trunnion bascule bridge at Chicago avenue, Chicago. diags plan Eng & Contr 42:388-90, 426-33 O 21, N 4 '14

- Double-deck bascule bridge over Chicago river. II E. Young. II diags Eng N 74:876-9 N 4 '15
- Substructure for the Jackson street bridge over the Chicago river. II diags Eng N 73: 550-2 Mr 18 '15

- Substructure of the Lake street bascule bridge. E. E. Young. II Eng N 74:934-5 N 11 '15
- Two large lift bridges at Chicago. diags Engineer 120:339-40 O 8 '15

Harbor

- Chicago breakwater extensions. diags Eng N 74:740-1 O 14 '15

Health department

- Report on work of ventilation division of the Chicago health department for 1913. E. V. Hill. diags Am Soc Heat & V 18:57-73 '14
- Ventilating division of the health department, Chicago. III. E. V. Hill. II diags Am Soc Heat & V 18:1412-34 '13

Hospitals

- Chicago municipal tuberculosis sanitarium. C. A. Erickson. II plans Brickb 24:267-72, pl 161-7 N '15

Hotels

- New Morrison hotel plant. T. Wilson. II plans Power 42:70-3, 111-15 JI 20-27 '15

Lighting

- Nitrogen-filled lamps in Chicago. II Elec W 65: 1173-4 My 8 '15

- Street lighting in Chicago. P. W. Haynes. II Illum Eng Soc 10:281-8 no 3 '15; Same cond. Am Gas Light J 102:316-17 My 17 '15
- Street lighting in Chicago: report. Elec R & W Elec'n 67:481 S 11 '15

Municipal pier

- Chicago municipal pier. II diags Eng N 74: 193-7 JI 29 '15
- Longest municipal pier in United States is nearing completion at Chicago. II diags Eng Rec 71:778-80 Jo 19 '15
- Severe tests show Chicago municipal pier to be sound in construction. II Eng Rec 72:75 JI 17 '15
- Superstructure of Chicago municipal pier. II Eng N 74:306-8 Ag 12 '15

Ordinances, etc.

- Chicago flat-slab ordinance; discussion. Eng N 72:1274-7 D 24 '14

Public works

- Central plant will handle repairs to all city equipment. II plan Eng Rec 72:265-7 Ag 28 '15
- Chicago's municipal repair shop. C. C. Sauer. II Munic Eng 48:289-91 My '15
- See also Chicago—Municipal pier

Railroads

- Alternative plans for rearranging Chicago freight terminals. plans Ity R 66:869-72 Jo 28 '15
- Chicago elevated medical methods. II. E. Fisher. II Elec Ity J 45:1192-5; 46:216-19, 430-4 Jo 26, Ag 7, S 1 '15
- Chicago freight interchange yard. II plans Eng N 73:1153-6 Jo 17 '15
- Chicago track elevation. Rock Island Nos. II diags Eng N 73:670-6 Ap 8 '15
- Report of Chicago railway terminal commission. Ity Age 58:1193-1 Jo 4 '15; Abstract. Eng N 74:42 JI 1 '15
- Rock Island track elevation work at Chicago. II diags Ity Age 58:690-1 Mr 26 '15
- Santa Fe to solve Chicago fruit terminal problem. plan Eng Rec 71:819-20 Jo 26 '15
- Three-level railway crossing at Chicago. II diags plans Eng N 73:708 10 Ap 15 '15
- Track elevation on the Nickel Plate railroad at Chicago. II diag map Eng N 74:888-91 N 4 '15
- Transportation in Chicago during a traction strike. II Ity Age 58:1469-74 Jo 25 '15

Rapid transit

- Commission fixes service standards in Chicago. Elec Ity J 46:776 O 3 '15
- Safety of trains on the Chicago elevated. II Elec Ity J 46:302-5 Ag 21 '15

Sanitary affairs

- Chicago should no longer depend on sewage dilution. Eng Rec 72:394 S 26 '15
- Chicago's sewage and water-supply problem. Eng N 73:1189 Jo 17 '15
- Future sanitary problem of Chicago; symposium. W Soc B J 19:757-75 O '14
- Recommend filtering Chicago water and progressive disposal of sewage. C. A. Soper, J. D. Watson and A. J. Martin. Eng Rec 71: 709 Jo 5 '15
- See also Chicago—Streets; Chicago Water supply

Stock yards

- Two years' tests indicate best treatment for Chicago stock yards wastes. II Eng Rec 71: 266-8 E 27 '15

Streets

- Chicago plan and the new heavy-traffic streets. W. D. Moody. map Eng N 73:482-3 Mr 11 '15
- Chicago takes a traffic census of the loop. Eng Rec 72:364 S 18 '15
- Street cleaning in Chicago. Munic J 38:35 Ja 14 '15
- Traffic count on Chicago streets. Elec Ity J 46:632-3 S 25 '15

Subways (conduits)

- Chicago builds its first utility gallery. plan Eng Rec 72:593-4 N 13 '15

Chicago—Subways (conduits)—Continued

Design and construction features of Chicago's first utilities gallery. *Il Eng & Contr* 44:376-7 N 10 '15

Pipe subways for the public utilities of Chicago. L. A. Dumond. *Eng Rec* 70:705-6 D 28 '14

Subways for public-utility pipes and wires in Chicago streets. *Eng N* 73:60-1 Ja 14 '15

Water supply

Chicago water works notes. *Il Munic J* 37:918-19 D 24 '14

Chicago's new tunnel and pumping station part of comprehensive waterworks plan. H. S. Baker. map *Eng Rec* 71:73-4, 103-4 Ja 16-23 '15

Constructing shaft and tunnel at Lake View pumping station. H. W. Clausen. *Eng & Contr* 42:500-1 N 25 '14

Wilson avenue water tunnel at Chicago. *Eng plan* *Eng N* 73:764-7 Ap 23 '15

Chicago & Alton railroad

Abstract of annual report. map *Ry Age* 59:795-6 O 29 '15

Chicago & Eastern Illinois railroad

Abstract of annual report. map *Ry Age* 59:986-7 N 26 '15

Chicago and North Western railway

Fifty-sixth annual report. map *Ry Age* 59:835-6, 672-3 O 8 '15

Valuation work. *Eng N* 74:843-5 O 28 '15

Chicago, Burlington & Quincy railroad company

Sixty-first annual report. map *Ry Age* 59:944-5, 1033-6 N 26 '15

Chicago central station institute

Training men for the central-station industry. *Il Elec W* 66:962-4, 1142-4 O 30, N 20 '15

Chicago drainage canal

Report on water-power development on the Chicago drainage canal. *Eng N* 72:1139 D 3 '14

Chicago Great Western railroad

Abstract of annual report. map *Ry Age* 59:995-6 N 26 '15

Chicago, Lake Shore & South Bend railway

Seven years of operating experience of a single-phase interurban railway. *Il map Elec Ry J* 46:940-5 N 6 '15

Chicago, Milwaukee & St. Paul railway

Bridge work of the C., M. & St. P. Ry. *Il plan* *Ry J* 56:336-8 Mr 13 '15

C., M. & St. P. railway high-voltage direct-current system. *Elec W* 64:1186 D 19 '14

Electric traction on the Chicago, Milwaukee & St. Paul Ry. *Eng map* *Eng N* 73:22-3 Ja 7 '15

Electrification. *Eng map* *Engineer* 119:104-6 Ja 29 '15

Electrification. C. A. Goodnow. *W Soc* 16 J 20:327-30 Ap '15

Electrification of 440.5 miles of the St. Paul. *Il map* *Ry Age* 59:683-9 O 15 '15

Electrification of terminal line at Great Falls, Mont. *Il Ry R* 57:57-8 J1 10 '15

Electrification of the Great Falls terminal. *Il Elec Ry J* 45:1172-3 Ju 19 '15

Electrification of the Puget Sound lines. A. H. Armstrong. *Il Eng map* *Gen Elec* 118:5-9 Ja '15; Same. *Ry Age* 57:1126-6 D 18 '14; Same. *Elec R & W Elec'n* 65:1206-8 J 26 '14; Same. *Ry J* 56:96-100 Ja 16 '15

Electrification progressing rapidly. *Eng N* 74:882 O 28 '15

1500-volt electrification of the Chicago, Milwaukee & St. Paul railway. W. D. Bourco. *Il Gen Elec* 118:644-5 J1 '15

51st annual report. map *Ry Age* 59:589-90, 628-30 O 1 '15

Great railway electrification project. *Il map* *Sci Am S* 79:56-8 Ja 23 '15

New line from Lewistown, Mont., to Great Falls. *Il map* *Ry Age* 58:734-9 Ap 2 '15

Operating plans for the electrified division of the C., M. & St. P. *Il Elec Ry J* 44:1341-2 D 19 '14

Progress on the electrification. *Il Elec R & W Elec'n* 67:769-71 O 23 '15; *Elec Ry J* 48:794-8 O 16 '15; *Eng Rec* 72:518 O 23 '15; *Ry J* 57:556-8 O 30 '15; *Power* 42:845-6 N 9 '15

Transmission system of the electrified divisions. R. E. Wade. *Il Ry R* 57:203-5 Ag 14 '15

Chicago, Milwaukee & St. Paul roadmasters' association

9th annual meeting, Milwaukee, Wis., Nov. 3-4. *Ry Age* 59:972 N 19 '15

Chicago, Rock Island & Pacific railroad

Annual meeting of the stockholders, April 12. *Ry Age* 58:831-2 Ap 16 '15

Chicago, Rock Island & Pacific—1902 to 1915. *Ry Age* 58:774-6 Ap 9 '15

Decrease in earning power of the Chicago, Rock Island & Pacific, 1902-1914. *Ry Age* 58:611 Mr 19 '15

Hearing before the Interstate commerce commission. *Ry Age* 58:1228-9 Jo 11 '15

Increase in volume of service rendered by the Rock Island 1902-1914. *Ry Age* 58:683 Mr 26 '15

Interstate commerce commission's report. *Ry Age* 59:323-7 Ag 20 '15

Investigation of the Rock Island system. *Ry R* 56:321-2 Mr 6 '15

Receivership. *Ry Age* 58:890 Ap 23 '15

Rock Island financing. *Ry R* 57:243-9 Ag 21 '15

Rock Island receivership. *Ry R* 56:567-8 Ap 24 '15

Rock Island's financing again. *Ry Age* 58:874-5 Ap 23 '15

Chicago, St. Paul, Minneapolis and Omaha railway

Thirty-fourth annual report. *Ry Age* 59:637, 674 O 8 '15

Chicory

Manufacture of chicory; a Franco-Belgian industry stopped by the war. J. Boyer. *Il Sci Am S* 80:40-2 J1 17 '15

Chief interchange car inspectors' and car foremen's association

17th annual convention, Richmond, Va., Sept. 14-16. *Ry Age* (Mech ed) 89:522-5 O '15

Chiefs of police, international association of, and international association of chiefs of police**Chiggers**

Harvest disease. *Sci Am S* 80:100 Ag 14 '15

Chihuahua, Mexico

Main mineral zone of the Santa Eulalia district.

J. Prescott. *Eng map* *Am Inst Min* 16 Bul 98:155-98 F '15

Child labor

Industrial scrap heap and the blind alley job. L. W. Dooley. *Sci Am S* 79:170-1 Mr 13 '15; Excerpts. *Il Sci Am* 112:247 Mr 13 '15

Pennsylvania's new compulsory continuation schools. *Il* 16. Miles. *Am Ind* 16:28-9 N '15

Children's museums

Children's museum. *Sci Am* 112:250 Mr 13 '15

Chile**Commerce**

Mineral exports of Chile. *Eng & Min J* 100:447 S 11 '15

Trade of Chile in 1914. *Am Ind* 16:44-5 O '15

Economic conditions

West coast business. M. R. Lamb. *Il Eng & Min J* 99:433-7 Mr 6 '15

Finance

Banking and credit in Argentina, Brazil, Chile, and Peru. R. N. Hurley. *U S Bur For & Dom Com* 80:1-72 '14

Financial developments in South American countries. W. H. Lough. *U S Bur For & Dom Com* 103:29-34 '15

Industries and resources

American metallurgist in the Chile nitrate field. *Eng & Min J* 99:252-3 Ja 30 '15

Braden copper co's. concentrator at Sewall. *Eng & Min J* 100:894-5 N 27 '15

Chilean nitrate industry. M. R. Lamb. *Il Eng & Min J* 99:811-15 My 8 '15

Early history of Braden mines, Sewall, Chile. W. Braden. *Il Eng & Min J* 100:389-91, 398-9 S 4 '15

Chile—Industries and resources—Continued

Gold and silver in Chile. *M. R. Lamb.* *Il Eng & Min J 99:847-9* May 15 '15
Mining methods at Braden. *II. R. Graham.*
Eng & Min J 100:831-3 N 30 '15
 Potash deposits in Chile. *S. Salcedo.* *Eng & Min J 100:318* Ag 7 '15
 Smelting at Panulillo, Chilo. *Il Eng & Min J 100:787-9* N 13 '15
 Told iron mines in 1914. *C. A. Buck.* *map Eng & Min J 99:145-6* Ja 16 '15

Chile exploration company, Chuquicamata, Chile
 High-voltage transmission at high altitude.
P. H. Thomas. *Il diag plan Elec W 65:29-31,*
87-92 Ja 2-9 '15

Chile saltpeter. See Saltpeter, Chile

Chilled iron

Association of manufacturers of chilled iron wheels; presidential address. *G. W. Lyndon.*
Ity R 57:505-6 O 16 '15; Same cond. *Ity Age*
59:690 O 15 '15; Same cond. *Ity Age (Mech*
ed) 59:578 N '15; Excerpts. *Islec Ity J 45:918*
O 30 '15; Iron Age 96:1059 N 4 '15
 Chilled car wheels. *W. J. Keep.* *Foundry 43:*
469 N '15

Control of chill in cast iron, considering the elements effective in the manufacture of malleable castings and chilled car wheels.
G. M. Thrasher. *Il Am Inst Min 10 Jul 106:*
2129-38 O '15; Same. *Foundry 43:491-3* J '15
 '15; Same. *Iron Tr R 57:1171-3* J 1 '15 '15
 Mixture for chilled crusher rolls. *W. J. Keep.*
Foundry 43:187 My '15

Standardization of chilled iron crane wheels; abstracts. *F. K. Vint.* *diag Am Soc M E J*
37:147-51 Mr '15; *Iron Tr R 56:1083-7+* D
10 '14

Strong claims for chilled iron car wheels. *F. K. Vint.*
Ity Age 58:820 Ap 16 '15
 Wreck due to a faulty car wheel. *Il Iron Tr R*
57:937-40+ N 11 '15

Chilliwack, B. C.**Sewerage**

Sewage disposal in Chilliwack. *B. P. Dunn.*
diag Munic J 38:587-9 My 20 '15

Chimes

Electrically operated chime outfits. *Il Elec R & W*
Islec N 56:701-2 Ap 10 '15

Chimneys

Bellor ratings and chimney sizes. *IC: R. Morocco.*
Dom Eng 69:301-2 J 5 '14
 Brick chimney which floats. *Il Power 41:740*
Je 1 '15

Chimney in a cyclone. *Il Munic Eng 49:82-3*
Ag '15

Chimney in modern home building. *A. Marple.*
Il Bldg Age 37:40-1 F '15

Chimneys for oil- and coal-burning plants.
F. H. Rosenkrantz. *Power 41:637-8* My 11 '15

Comparison of chimney sizes. *J. C. Lathrop.*
Power 42:299 Ag 31 '15

Comparison of chimney sizes. *L. W. Cutler.*
Power 42:519-20 O 12 '15

Falling a brick chimney. *G. A. Mead.* *Il Eng*
N 73:400-1 F 25 '15

Height of chimneys for burning anthracite.
Power 42:618 O 12 '15

Proper sizes of chimney flues. *Dom Eng 72:*
172-3 Ag 7 '15

Razing a brick chimney. *Il Power 41:374* Mr 16
 '15

Razing a 400-ton brick chimney. *Il diag Eng*
N 72:1208 D 24 '14

Reinforced concrete as an emergency repair
 for an iron chimney. *Il diag Eng & Contr 48:*
100-1 F 3 '15

Repairing a badly corroded iron chimney dur-
 ing operation. *Il Eng N 73:221* F 4 '15

Smaller stacks and lightning. *Il Eng & Min J*
98:1005-6 D 5 '14

Straightening a tall leaning factory chimney
 by a new method. *T. K. Clark.* *diag Eng*
N 73:206-7 F 11 '15; Same. *Power 41:408* Mr
 23 '15; Same. *Eng & Min J 99:822* My 8 '15;
 Same. *Ind Eng 15:66-7* Ag '15

Tall brick stacks repaired rapidly under diffi-
 culties. *Il Eng Rec 72:26* J 13 '15

Three points in chimney design. *Eng N 74:*
77 J 18 '15

Trouble with a leaky chimney. *J. R. Bell.* *diag*
Bldg Age 37:53-4 Mr '15

Warm-air furnace design and installation.
diag Metal Work 84:149-50, 525-6, 575-6 J 1
 30, O 22, N 5 '15

Wind pull pivots in stack brace. *Il Power 42:*
426 S 21 '15

See also Fireplaces; Heating; Ventilation

Chimneys, Concrete

Construction of concrete chimneys. *P. H. Wil-*
son. *Il Bldg Age 37:71-2* Ja '15

Design, construction and cost of a 137-ft. rein-
 forced concrete chimney at Coldwater, Mich.
K. B. Morion. *Eng & Contr 44:111-12* Ag 11
 '15

Effects of fumes from lignite coal and from
 wood on cement brick chimneys. *Concrete*
Com 5:246-7 D '14

Power plant of Havana gas and electric cor-
 poration. *Il Munic Eng 49:86* Ag '15; *Power*
41:166 F 2 '15

Reinforced concrete chimneys in Havana. *Il*
Concrete Com 5:281 Je '15

Tearing down a 250-ft. reinforced-concrete
 chimney at Philadelphia. *Il Eng N 73:78* Ja
 14 '15

Chimneys, Steel

Complicated smokestack connection. *diag Eng*
N 73:413-4 Mr 4 '15; Same. *Power 41:643-4*
My 11 '15

Cutting down a steel stack. *Il Power 41:888* Jo
 29 '15

Design and construction of a 400-foot steel
 stack at the United Verde copper co.'s plant,
 Clarkdale, Ariz. *L. W. Barker.* *Il diag Eng*
& Contr 44:140-1 Ag 25 '15

Difficult smoke-stack job. *F. L. Johnson.* *Il*
Power 42:506-7 O 12 '15

Foundation bolts for steel chimneys. *Il, L.*
Islec. *diag Power 42:476* O 5 '15; Same. *Eng*
& Min J 100:718-19 O 30 '15

Methods and equipment used in wrecking a
 101-ft. steel stack. *Il Eng & Contr 44:305* O
 20 '15

Reasons for corrosion of steel smokestacks and
 ways to prevent it. *R. L. Elkin.* *Elec W 66:*
1033 N 6 '15

China

American engineer in China. *W. H. Parsons.*
Il map J Fr Inst 179:381-413 Ap '15; Ab-
 stract. *Eng M 49:430-1* Jo '15

See also Accounting—China; Forestry and
 forestry—China; Iron mines and mining—
 China; Railroads—China

Commerce

China and Indo-China markets for American
 lumber. *F. H. Smith.* *U S Bur For & Dom*
Com 104:1-39 '15

Winning of the Orient. *E. H. Foot.* *Il Am Ind*
15:22-3+ Ja '15

Woolen and worsted fabric in China. *T. Sam-*
mons. *Textile World 49:472-5* J 1 '15

Industries and resources

Chinese cotton industry. *R. A. Morgan.* *Tex-*
tile World 50:187-9 N '15

Chinese machine shop of today. *F. A. Foster.*
Iron Tr R 57:992+ N 18 '15

Cotton manufacturing in China. *R. A. Morgan.*
Il Textile World 49:412-13; 50:185-8 J 1, O '15

Mining conditions in China. *F. L. Garrison.*
Eng & Min J 100:26-8 J 13 '15

Mining in China. *Eng & Min J 100:468* N 18 '15

Opportunity for the engineer in China. *F. A.*
Foster. *Am Soc M E J 37:646* N '15

Tariff in China (central station). *L. Schmidt-*
Harms. *Elec W 66:128* J 17 '15

Public works

Flood relief in the Hwai river district of China.
map Engineer 120:321 O 8 '15

Report on flood prevention in China. *Il Eng*
Rec 70:679-80 D 19 '14

Railroads

See Railroads—China

China closets

Details of a built-in china case. *W. H. Wilkin.*
diag Bldg Age 37:27-30 D '15

- Chinese wood oil**
Constitution of Chinese wood oil varnishes. E. E. Ware and C. L. Schumann. *J Ind & Eng Chem* 7:571-3 J '15
Quantitative method for the determination of the adulteration in Chinese wood oil. J. C. Brier. *J Ind & Eng Chem* 7:953-7 N '15
- Chloral**
Action of chloral, bromal and benzaldehyde on the polycyclic hydrocarbons in the presence of aluminum chloride. G. B. Frankforter and W. Kritchevsky. *Am Chem Soc J* 37:385-92 F '15
- Chlorides**
Chlorides in oil-field waters. C. W. Washburne. *Am Inst Min* 13 Bul 87:375-81 Mr '14; Discussion. 90:1374-5; 100:825-30 Jo '14, Ap '15
- Chloridizing ores.** See Hydrometallurgy
- Chlorination process**
Chlorination of ores. *diag Met & Chem Eng* 13:505 Ag '15
Refining gold by Miller's chlorine process; abstract. R. Pearson. *Met & Chem Eng* 13:508 Ag '15
- Chlorine**
Chlorine gas on the battlefield. *Sci Am* 112:453 My '15 '15
Electrolytic cell patents for the production of caustic soda and chlorine. *diag Met & Chem Eng* 13:815-16 N '15
Electrolytic production of caustic and chlorine. *diag Met & Chem Eng* 13:506 Ag '15
Ortho-toluidin test for free chlorine. W. J. Monfort. *Am Water Works Assn J* 1:734-6 D '14
- Chlorine, Liquid**
Automatic liquid-chlorine water disinfecting plant at Stamford, Conn. J. A. Newlands. *Eng N* 73:1154-9 Jo '15 '15
Bubbly creek filter plant adopts liquid chlorine treatment. C. A. Jennings. *Am Water Works Assn J* 2:401-3 Jo '15; Same. *Eng N* 73:555 Mr '15; Same. *Eng Rec* 71:338 Mr '15
Efficiency of the liquid chlorine sterilization plant at Wakefield, Mass.; abstracts. 30: (3. Sherman. *Eng & Contr* 44:410 N '14 '15; Munie *J* 39:811 N '15 '15
Liquid chlorine sterilization of the water supply of St. Catharines, Ontario. A. Milne. *Eng N* 73:1154-9 Jo '15
Relative efficiency of liquid chlorine and hypochlorite of lime. F. E. Hale. *Eng & Contr* 43:173-4 Jo '14 '15
Use of liquid chlorine at Buffalo water-works intake. H. F. Wagner. *Eng N* 73:856-7 My '15
Water borne typhoid in Sacramento, Cal.—interesting application of liquid chlorine. N. M. Williamson. *Eng & Contr* 44:314 O '15 '15
- Chloroacetates**
Salts of the chloroacetic acids. W. G. Bateman and A. B. Hoel. *Am Chem Soc J* 36:2517-21 D '14
Salts of the halogenoacetic acids. W. G. Bateman and T. J. Conrad. *Am Chem Soc J* 37:2553-60 N '15
- Chlorobenzoylacetic esters**
o-and p-chlorobenzoylacetic esters and some of their derivatives. L. Thorp and M. L. Brunsell. *Am Chem Soc J* 37:1258-64 My '15
- Chlorophyll**
Method of investigation. R. Willstätter. *Am Chem Soc J* 37:323-45 F '15
- Chloro-perlin**
Production of chloro-perlin by the action of aqua regia on organic compounds. R. L. Datta and N. R. Chatterjee. *Am Chem Soc J* 37:567-9 Mr '15
- Christmas printing**
Essentials to holiday printing. J. L. Frazier. *Inland Ptr* 54:369-71 D '14
Examples of holiday printing. *II Inland Ptr* 54:368a-368h; 55:352a-352h D '14, D '15
Reproduction of designs of Christmas greetings. J. L. Frazier. *Inland Ptr* 54:567-60 F '15
- Christmas trees, Municipal**
Municipal Christmas tree for Dayton. *II Elec. R & W Elec'n* 65:71 Ja '15
- Christy, Samuel Benedict, 1853-1914**
Sketch. R. W. Raymond. *por Eng & Min J* 98:1105-6 D '14 '14; Same. *Am Inst Min E* Bul 100:705-9 Ap '15
- Chromium**
Effect of chromium and tungsten upon the hardening and tempering of high speed tool steel; abstract with discussion. C. A. Edwards and H. Kikkawa. *Iron Age* 96:1126-7 N '15
See also Nickel chromium
- Chromophotography.** See Color photography
- Chronophotography**
Electric lighting for motion-picture studios. L. G. H. Smith. *Elec W* 65:1040-2 Ap '15
See also Moving pictures
- Chucks**
Air-operated chucks and mandrels. E. F. Lako. *II diag Mach* 21:476-9 F '15
Bicknell-Thomas tapping chuck. *II Mach* 22:159-60 O '15
Boring and facing back end main rod brasses and driving boxes. M. Flanagan. *II diag Ry Age* (Mech ed) 89:239-40 My '15
Chuck for finishing air pump packing rings. F. H. Stewart. *diag Ry Age* (Mech ed) 89:589 N '15
Chuck for finishing boiler chuck bottles. W. W. Hille. *II Ry Age* (Mech ed) 89:133 Mr '15
Chucking ring and jaw extension for turning pistons. H. Doren. *diag Mach* 21:1010 Ag '15
Bellows roller bearing drill chuck. *II diag Mach* 21:428-9 Ja '15
Horton combination geared scroll chucks. *II diag Mach* 21:329 D '14; *Iron Age* 94:1279 D '14
Improved Wahlstrom drill chucks. *diag Mach* 22:161 O '15
Kipnis automatic drill and lathe chucks. *II diag Mach* 21:514-15 F '15
Preventing lathe chucks from sticking. *diag Mach* 21:748-9 My '15
Shoe and wedge chuck for milling machine table. R. W. Brown. *diag Ry Age* (Mech ed) 89:591 N '15
Special chucks for air pump repairs. W. W. Hille. *II Ry Age* (Mech ed) 89:183 Ap '15
Wrenchless chucks. *II Metal Ind* n s 13:474 N '15
- Chucks, Magnetic**
Blanchard magnetic chuck. *II diag Mach* 21:678-9 Ap '15
Electrical appliances for workshops. *II Engin-eer* 119:570-2 Jo '15
Holding work on the magnetic chuck for milling. *II Mach* 22:50 S '15
- Church architecture**
Books on colonial architecture. R. F. Bach. *Biblog Arch Rec* 35:379-82 S '15
Church of Abiah St. Nazaire. J. P. Alaux. *II Am Inst Arch J* 3:337-8 Ag '15
Church towers, steeples, and spires of Sir Christopher Wren. R. L. Phillips. *II Brickl* 24:185-9, 228-33 Ag '15
Competition for a small brick church and parish house. *II Brickl* 21:148-52 Jo '15
Emile Vandereuer. J. P. Alaux; L. Brachet; W. Cook. *II plans Am Inst Arch J* 3:292-9 J '15
First church of Christ, Scientist, Los Angeles, Cal. *II diag plans Brickl* 24:pl 85-8 Jo '15
First church of Christ, Scientist, Los Angeles: design and plan. *Arch & Bldg* 46:478a D '14
First church of Christ, Scientist, Worcester, Mass. *II plans Brickl* 24:pl 89-90 Jo '15
Frame church building at Bowen, Ill. *II diag plans Bldg Age* 37:31-4 J '15
House of Hope Presbyterian church, St. Paul, Minn. *II plan Arch Rec* 37:410-24 My '15
Modern brick-veneer frame church erected under three contracts. *II diag plan Bldg Age* 37:29-32 Mr '15
Notable church edifice: the Val de Grace, in Paris, erected in 1638. *II Bldg Age* 37:62-4 My '15
Ravenwood Presbyterian church, Chicago: views and plans. *Brickl* 24:pl 117-18 Ag '15
Sheet metal for St. Ignatius church, San Francisco. W. A. Douglas. *II Metal Work* 83:162-3+ Jo '15
Thoughts on reading J. C. Cox's 'The English Parish church. *Am Inst Arch J* 3:339-45 Ag '15

Church architecture—Continued

- Trinity Lutheran church, Akron, Ohio. I. T. Frary. II plans Arch Rec 37:363-67 Mr '15
 Village church in England. J. Y. Dunlop. II Bldg Age 37:37-41 D '15
 Webb Horton Memorial Presbyterian church, Middletown, N. Y. Brickb 24:pl 1-3 Ja '15
See also Albeys; Chapels

Church finance

- Church and business methods. J Account 19: 204-6 Ap '15

Church lighting

- Church lighting. F. L. Godinez. II plan Arch & Bldg 47:321-5 Je '15
 Lighting of a church in war time. II Illum Engr 8:478 N '15

Churches

See also Church architecture; Church lighting

Heating and ventilation

- Church warmed by cast-iron sectional boiler. II plans Metal Work 83:98-100 Ja 8 '15
 Features of economical church heating plant. II plans Metal Work 83:405-8 Mr 19 '15
 Ventilating and cooling a church. plan Bldg Age 37:61-2 S '15
 Ventilating and cooling church edifice. plan Metal Work 82:767-8 D 11 '14

Churn drills. See Rock drills**Chutes**

- Minimum slope for concrete chutes. W. H. Inley. Eng & Contr 44:400 N 27 '15

Cider

- Apple syrup and concentrated cider. Sci Am S 80:78-9 J1 31 '15

Cinchona alkaloids

- Nature of the catalysis in the conversion of the cinchona alkaloids into their toxins. H. C. Biddle. Am Chem Soc J 37:2088-2112 S '15

Cinchotoxins

- Rate of conversion of cinchonidine into cinchotoxins. H. C. Biddle and R. H. Butzbach. Am Chem Soc J 37:3082-7 S '15
 Rate of conversion of cinchonine into cinchotoxins. H. C. Biddle and O. L. Brauer. Am Chem Soc J 37:2065-82 S '15

Cincinnati, Ohio**Bridges**

- Construction features of the reinforced concrete cantilever bridge on Runnymede avenue. II Eng & Contr 43:312-13 Ap 7 '15
 Design of the reinforced concrete cantilever bridge on Runnymede avenue. diags Eng & Contr 43:271-2 Mr 21 '15
 Hopple street viaduct, Cincinnati. II diags Munic J 39:170-83 Ag 5 '15

Fire department

- Cincinnati's fire department. II Munic J 39:283-7 Ag 26 '15

Hospitals

- New General hospital. J. R. Schmidt. II plan Arch Rec 37:453-63 My '15

Lighting

- Cincinnati franchise negotiations. Elec W 66: 105 J1 10 '15

Rapid transit

- Rapid transit plans for Cincinnati. Elec Ry J 45:108 Ja 9 '15

Sewerage

- Design of regulators and storm water overflows for sewers. M. J. Miner. diags Eng & Contr 42:166-7 Ag 12 '14
 Method and cost of making a relocation survey of underground pipe lines. O. H. Carr. plans Eng & Contr 42:163-5 Ag 12 '14; Same cond. (Underground survey of Cincinnati). Eng Rec 71:36-40 Ja 9 '15

Streets

- Cincinnati street cleaning. Munic J 38:38-9 Ja 14 '15
 Sidewalk work in Cincinnati. D. L. Barr. Munic J 38:768-6 Je 8 '15

Water supply

- Brass screen between sand and gravel eliminated in Cincinnati filter reconstruction. J. W. Illms. II Eng Rec 71:581-2 My 8 '15
 Cincinnati builds high-pressure fire service system. J. A. Miller. II diags Eng Rec 71:590 My 8 '15
 Cincinnati plant has eliminated waterborne typhoid. Eng Rec 72:336 S 11 '15
 Cincinnati water works. J. W. Hill. diag Am Water Works Assn J 2:12-60 Mr '15
 Design details of the Cincinnati high pressure fire system. diags Eng & Contr 43:529-32 Jo 16 '15
 Failure of 60-in. water main at Cincinnati by longitudinal compression. J. W. Alvord. diags plan Eng & Contr 43:148-50 F 17 '15; Same cond. Eng Rec 71:588-9 My 8 '15; Excerpt. Eng N 73:407-8 F 25 '15
 Operations of the Cincinnati water-filtration plant for 1914. J. W. Illms. II Eng N 73:854-8 My 6 '15

Cinder concrete. See Concrete, Cinder**Cinders**

- Cinder crushing and pulverizing mill. II Iron Age 96:242 J1 29 '15
 Cinder removal from flue gases. C. H. Grady. diag Eng M 18:905-7 Mr '15
 Performance of a cinder catcher. M. Van Valkenburgh and M. H. Isenberg. plan Power 40:918-19 1) 29 '14

Cinematograph

- Current supply for motion picture machines. H. R. Johnson. II diags Gen Elec R 18:896-901 S '15
 Motion-picture camera of radical design. II Sci Am 113:276 S 25 '15

See also Moving pictures

Cinnabar. See Mercury**Cinnamic aldehyde**

- Researches on hydantoina; the condensation of cinnamic aldehyde with hydantoina. T. H. Johnson and E. Wrenshall. Am Chem Soc J 37:2133-44 S '15

Ciphers

- Cipher codes. H. A. Darnell. Sci Am 113:181 Ag 28 '15
 Cipher codes and their uses. E. C. Edwards. Sci Am 113:9 J1 3 '15
 Cipher codes simplified. I. J. Paddock. Sci Am 113:271 S 25 '15
 Enciphering and deciphering codes. F. Moorman. Sci Am 113:169 Ag 21 '15
 Science of the cipher and an explanation of Bacon's undecipherable system. W. W. Brewton. Sci Am S 78:394-5 Jo 19 '15
 Simple cipher code. H. S. Woodworth. Sci Am 113:291 1) 2 '15

Circle building. See New York (city). Architecture**Circles**

- Elementary perspective drawing. G. W. Kirtledge. Bldg Age 37:24-6 Ag '15
 Table for spacing of circles. A. McAlpine. Foundry 45:280a J1 '15

Circuit breakers, Electric. See Electric circuit breakers**Circular letters. See** Sales letters**Cisterns**

- Filter and rain-water cistern. diags Bldg Age 37:37-8 Ap '15; Same. Metal Work 84:485 1) 15 '15
 New type of adjustable cistern form. Concrete Cem 6:107-8 F '15

Cities

See also City planning; Cleaning of cities; Garden cities; Model towns; Municipal government and other headings beginning Municipal; Parks; Street cleaning; Streets

Citrus oils

- Determination of volatile esters in citrus oils and extracts. A. R. Albright and C. O. Young. Am Chem Soc J 37:3232-7 C '15

City forester. See Trees**City government. See** Municipal government**City manager plan. See** Municipal government--City manager plan

City managers

Training and advancement of city managers. K. Middle. Eng N 73:822-3 Ap 29 '15
 Training for city managers. H. M. Waite. Eng Rec 70:671-2 D 19 '14

See also Municipal government—City manager plan

City managers' association

First convention of city managers. Eng N 72:1189-90 D 10 '14
 First convention, Springfield, O., Dec. 2, 3 and 4, 1914. Munic J 37:903 D 17 '14
 First meeting, Dec. 2-4, at Springfield, Ohio. Eng Rec 70:sup 286 D 12 '14
 2d annual convention, Dayton, O., Nov. 15-17. Munic J 39:823-4 N 25 '15

City planning

Alley problem. C. B. Ball. Eng N 74:871 N 4 '15
 Architect's part in the world's work. F. L. Ackerman. Arch Rec 37:149-58 F '15
 Aspects of city-planning administration in Europe. F. B. Williams. Am Inst Arch J 3:280-4 Je '15
 Battle with chaos: the architectural side of city planning. F. L. Ackerman. Am Inst Arch J 3:444-7 O '15
 Building-area, height and other limitations to use of private city property compiled. N. P. Lewis. Eng Rec 72:597-8 N 13 '15
 Burnham as a pioneer in city planning. W. B. Parsons. Il plans Arch Rec 38:13-31 Ji '15
 City plan for Detroit. G. H. Bennett. plans Am Inst Arch J 3:264-8 Je '15
 City planning and civic-center work in Denver. H. Read. Il Am Inst Arch J 3:497-500 N '15
 City planning—how it should be prosecuted. N. P. Lewis. Eng Rec 72:415-17 (1) 2 '15
 City planning in Queens borough, New York. F. B. Tucker. map Eng N 74:638-41, 689-91 S 31-O 7 '15
 City planning—what it is—four main features. N. P. Lewis. Eng Rec 72:382-4 S 25 '15
 Commonsense and continuity of policy in town planning. R. C. Sturges. Am Inst Arch J 3:307-8 Ji '15
 Comprehensive city planning in Philadelphia. R. A. Haldeman. Il Am Inst Arch J 3:265-60 Je '15
 Concise city plan report for Bridgeport, Conn. Munic J 38:475 Ap 8 '15
 Constitution and powers of a city-planning authority. R. H. Whitten. Am Inst Arch J 3:251-5 Je '15
 Collaboration of the real-estate developer and town-planner in land subdivision. P. A. Hirsch. Am Inst Arch J 3:308-10 Ji '15
 Dominion town planning. T. Adams. Eng N 73:673-4 Mr 25 '15
 Dunderdon in town planning. W. R. H. Willcox. Am Inst Arch J 3:172-4 Ap '15
 Economic side of city planning. H. Wright. maps Assn Eng Soc J 54:79-93 S '15
 Ellen Wilson memorial homes to be erected at Washington, D. C. G. H. Ford. Il plans Am Inst Arch J 3:362-7 Ag '15
 How apportion costs of municipal improvements? N. P. Lewis. Eng Rec 72:666-7 N 27 '15
 How to go about city planning. W. R. Moody. Il Am Inst Arch J 3:303-8 S '15
 Ideals in city planning. H. Emerson. Sci Am S 78:379-80 D 12 '14
 McKim and the park commission. C. Brown. Il plan Arch Rec 38:681-9 Ji '15
 Modern city planning and maintenance, by F. Koester. Review. Am Inst Arch J 3:33-5 F '15
 Municipal control of street planning; abstracts of laws of cities, states, and Canadian provinces. A. L. Bostwick. Munic J 39:145-7 Ji 29 '15
 National conference on city planning. Eng N 73:1190 Je 17 '15
 Need of a city plan and of a city topographic map. J. W. Shirley. Eng N 73:281-3 S 11 '15; Same. Munic Eng 48:58-61 Ja '15
 New York tax list: fluctuation of real estate values due to lack of regulation of the character of buildings. Am Inst Arch J 2:572-3 D '14
 Progress of city planning in St. Louis. plans Am Inst Arch J 3:271 Je '15

Reasons for city topographic surveys. H. C. Mitchell. Eng N 73:280-1 F 11 '15

Reconstructed city. J. R. Smith. Eng & Contr 44:82-4 Ji 28 '15

Re-planning in Detroit: report to the Board of street railway commissions by Barclay, Parsons and Klapp. Il Am Inst Arch J 3:268-70 Je '15

Scheme to relieve congestion at busy street intersection. Il Eng N 71:875 N 4 '15

Significance of the English town-planning act of 1909. F. B. Williams. Il diagr Am Inst Arch J 3:316-21 My '15

Six years of city planning in the United States. F. Shurtleff. Am Inst Arch J 3:240-51 Jo '15

Street mapping. L. L. Tribus. Good Roads n s 10:235 O 23 '15

Tradition and city development. H. V. Lancaster. Am Inst Arch J 3:121-5 Mr '15

See also Building laws; Garden cities; Housing problem; Model towns; Municipal improvement

Bibliography

Bibliography of town planning. Am Inst Arch J 3:272-3 Jo '15

Study and teaching

City-planning instruction in the public schools of Newark, New Jersey. J. C. Dana. Am Inst Arch J 3:447-8 O '15

City surveying. See Surveying; Topographical surveying

Civil engineering

Review of the year 1914. Sci Am 112:6 Ja 2 '15

Seventy years of civil engineering. Il Sci Am 112:527-9-1 Je 5 '15

What the Panama-Pacific exposition means to civil engineering and contracting. Eng Rec 71:819-20 My 15 '15

See also Aqueducts; Arches; Architecture; Blasting; Breakwaters; Bridges; Building; Canals; Cofferdams; Curves; Dams; Docks; Drainage; Dredging; Drilling and boring (earth and rocks); Earthwork; Embankments; Engineering; Excavation; Flood control; Foundations; Grading; Harbors; Highway engineering; Hydraulic engineering; Irrigation; Mining engineering; Municipal engineering; Piles and pile driving; Public works; Railroad engineering; Railroads—Construction; Reclamation of land; Rivers; Roads; Sanitary engineering; Shore protection; Steel construction; Strains and stresses; Streets; Subways; Surveying; Tunnels and tunneling; Walls; Water supply engineering

Examinations

California examination for construction engineer. Eng N 74:1081 D 2 '15

Civil engineers

British engineers advised as to uniform charges. Eng Rec 72:80 Ji 17 '15

Compensation of civil engineers. Eng N 73:34-7 Ja 7 '15

Compensation of engineers. Ry R 56:82 Ja 16 '15

Compensation of engineers varies widely—those in contracting fare best. Eng Rec 71:130-42 Ja 30 '15

More light on the compensation of engineers. Eng Rec 71:129 Ja 30 '15

National factory of safety, giving engineers instruction in military matters. W. R. King. Eng Rec 71:133 Ja 30 '15

See also Engineers

Civil engineers, American society of. See American society of civil engineers

Civil service

Federal law protecting government employees. R. D. Micou. Eng N 73:665 Ap 8 '15

Examinations

Choosing a first-class water works superintendent in Massachusetts. Eng & Contr 44:292-2 O 13 '15

Engineers and civil-service examinations in Philadelphia and elsewhere. A. M. Swanson. Eng N 73:277-9 F 11 '15

Civil service—Examinations—Continued

Questions asked in examination of applicants for position of water works superintendent at Kalamazoo, Mich. Eng & Contr 44:158-9 S 1 '15

Clamping devices. See Machine tools—Fixtures**Clamps**

Adjustable foundry clamp. *II* Foundry 43:169 Ap '15
Cleave clamps for stranded conductors. *II* Elec Ry J 46:805-6 Ap 24 '15
Handy flask clamp. J. F. Buchanan. *II* diag Foundry 43:242-3 Jo '15
New cast-steel clamp for guard-rails. diag Eng N 72:1161 D 10 '14
Overhead straight line and angle protective crossing clamps. diag Elec Ry J 46:598-9 S 18 '15; Elec V 66:770 O 2 '15
Pneumatic plate clamping clamp. *II* Iron Tr R 66:271 R 4 '15

Class rooms

Modern schoolhouse; the class room. W. H. Killiam. plans Brickb 24:3-8 Ja '15

Classification

Filing of technical literature. W: Arthur. Elec Ry J 45:511-12 Mr 13 '15
Indexing and filing technical literature. A. R. Kanner. Eng & Min J 99:851-6 My 15 '15
Proposed system of classifying and digesting the records of the society; with discussion. M. J. Trindle. Am Soc M 16 J 37:272-6 My '15
Random reflections on classification of men and sciences. Sci Am 12:137 R 6 '15
See also Joint committee on classification of technical literature

Classification, Decimal

Indexing of electrical engineering subjects. Elec W 65:1026-7, 1229 Ap 24, My 15 '15
Subject index system of classification for filing data and plans. Am Inst Arch J 3:43-5 Ja '15
Suggested extension of the Dewey decimal system of classification to gas engineering. D. S. Knauss. Am Gas Inst Pro 9:pt 2, 1746-50; Discussion, 9:pt 2, 1750-7 '14

Classification of electromagnetic machinery. F. Greedy. diag Am Inst M 13 Pro 31:1399-1423 J 1 '15

Classifiers

Use of hydrometallurgical apparatus in chemical engineering. J: V. N. Dorr. *II* diag Met & Chem Eng 13:55-9 Ja '15; Same. J Ind & Eng Chem 7:119-22 R '15

Clay

Afterberg plasticity method. C: S. Kinnison. *II* S Bur Stand Tech Pa 46:1-18 '15
Burnt clay as concrete aggregate. *II* Eng & Contr 43:463 My 19 '15
Lateral pressure and resistance of clay, and the supporting power of clay foundations. A. L. Bell. Engineer 119:124 Ja 29 '15
Mineralogical constituents of clays. W: H. Fry. Mon Geol 10:292-5 Ap '15
Plasticity of clay and its relation to mode of origin. N. B. Davis. *II* Am Inst Min 13 Bul 98: 301-30 R '15
Use of sodium salts in the purification of clays and in the coating process. A. V. Kleininger. *II* diag U S Bur Stand Tech Pa 51:3-40 '15
White-burning clays of the southern Appalachian states. J. H. Watkins. *II* map Am Inst Min 13 Bul 98:391-411 R '15; Abstract. Met & Chem Eng 13:179-80 Mr '15
See also Bricks

Clay products

Legal interpretation of the word "vitrified" as applied to ceramic products. R: Orton, Jr. Eng Rec 72:74 J 17 '15; Eng N 74:171 J 22 '15

See also Bricks; Pottery; Tiles

Clayton act

Clayton act and other things. W: H. Taft. Am Ind 15:34-7 Jo '15
Clayton act and the exclusive agent. E. J. Buckley. Metal Work 82:835 D 25 '14
Exclusive agencies and the Clayton act. Elec R & W Elec'n 66:527-9 Mr 20 '15
Federal trade commission and the Clayton law. R. C. Butler and C. Lynde. Ry R 66:442-3 Mr 27 '15

Important decision on the Clayton act. Sci Am 113:103-1 Ag 21 '15
Legality of exclusive agencies upheld. Elec R & W Elec'n 66:508 My 15 '15
Supreme court and the Clayton bill. Am Ind 15:29-30 Ap '15

Cleaning

Cleaning machined parts. *II* Iron Age 96:627 S 16 '15
Dry cleaning at home. Sci Am 113:441 N 20 '15
Industrial uses of hydrofluoric acid. K. F. Stahl. J Ind & Eng Chem 7:56-8 Ja '15; Same. Sci Am S 79:140-1 R 27 '15
Travelling mill for cleaning scrap. *II* plan Iron Age 96:14-15 J 1 '15
See also Bleaching; Boiler cleaning; Car cleaning; Laundry; Street cleaning; Vacuum cleaning

Cleaning of cities

Annual municipal clean-up week in Philadelphia. *II* Eng N 73:620-1 Ap 1 '15
Comprehensive clean-up campaign for Cincinnati. Munic Eng 48:303-4 My '15
Three roofs furnish more dirt than 4½ miles of street. *II* Eng Rec 71:683 My 29 '15

Cleaning of water mains. *See* Water pipes—Cleaning

Cleanliness

See also Disinfection and disinfectants; Sanitation

Clearing of land

Costly highway clearing in dense forests. *II* Eng Rec 71:21 Ja 2 '15
Portable stump boring machine. *II* Sci Am 112: 202 R 27 '15
Steam land-clearing machine. *II* Eng & Contr 42:166 Ag 12 '14
See also Lumbering

Cleburne, Texas**Sewerage**

Design feature of new sewerage system and sewage disposal works. R. E. McConnell. diag plans Eng & Contr 44:172-5 J 1 28 '15

Cleveland, Ohio

Cleveland and its industries. S: Mather. Iron Tr R 67:852 J. O 28 '15

Bridges

Details of main span of Detroit-Superior bridge at Cleveland. diag Eng Rec 70:640-1 D 13 '14
Fast concreting on Brooklyn-Brighton viaduct. *II* diag Eng N 74:481 S 9 '15
Methods and equipment used in constructing the superstructure of the Detroit-Superior high level bridge. *II* diag Eng & Contr 44: 10-13 J 17 '15

Division of purchases and supplies

Purchasing and distributing supplies in Cleveland. A. R. Callow. *II* Munic J 39:391-4 S 9 '15

Lighting

Cleveland's municipal electric light plant. *II* diag Munic J 38:869-76 Jo 24 '15
Design and operation of the Cleveland municipal electric light plant; abstracts with discussion. F: W. Ballard. *II* diag Am Soc M 16 J 37:104-11 R '15; Power 41:104-8 Ja 19 '15; Abstract of discussion. Elec W 64:1139-40 D 12 '14
Engineering features of Cleveland public lighting plant. *II* Elec W 66:1619-22 Jo 19 '15

Ordinances, etc.

Heating ordinance of Cleveland. V. D. Allen. Dom Eng 70:44-6, 72-4, 155-6 Ja 9-16, 30 '15
How Cleveland fixes sizes of courts and yards. plan Eng Rec 71:614 My 15 '15

Railroads

Railway terminal projects in Cleveland. Ry R 67:163 J 31 '15

Stores

Amos store. *II* plans Arch & Bldg 47:359-64 O '15

Streets

Street repair in Cleveland, Ohio; with cost tables. P. J. Masterson and others. *II* Munic Eng 49:174-8 N '15

Cleveland, Ohio—Continued**Water supply**

Cleveland west side water-supply tunnel. II
diags plan long N 73:4-8 Ja 7 '15

Wharves

Ninth street pier in Lake Erie at Cleveland,
Ohio. II diags long N 74:258-60 Ag 5 '15

Cleveland, Cincinnati, Chicago & St. Louis rail-
way
Annual report. Ry Age 58:769-70 Ap 2 '15

Cleveland engineering society

Engineer and publicity, with special reference
to the publicity work of the Cleveland engi-
neering society; abstract. C. B. Drayer. Eng
& Contr 42:574-5 D 23 '14; Abstract with
discussion. Am Soc M E J 37:88-92 R '15

Climate

Effect of climate on location of manufacturing
plants. W. M. Booth. Sci Am S 79:219 Ap 3
'15

Clinkers

Causes and prevention of clinker. L. Rankin.
Power 42:302-4 Ag 31 '15

Clinkering of coal. L. S. Marks. diags Am Soc
M E J 37:205-8 Ap '15; Same. Power 40:932-
4 D 20 '14; Discussion. Am Soc M E J 37:
208-14 Ap '15

Clinkering of coal. O. W. Pulmonberg. Colliery
35:201 Ja '15

Formation of clinker in coal. S. U. Tuspin.
Elec W 65:1184-5 My 8 '15

See also Cement clinker

Clocks

Measurements for the household. II U S Bur
Stand Chrs 55:126-35 '15

Closed shops. See Open and closed shops

Cloth-sample books

Outerowths of letterpress: the cloth-sample
book industry. G. Sherman. Inland Tr 54:
625-30 R '15

Cloth testing. See Textile industry and fabrics—
Cloth testing

Cloth windows

Hygienic home: facts about ventilation and
fresh air. J. B. Todd. Sci Am S 79:74 Ja
'15

Clothing

Clothing a winter army. Sci Am 112:215 I Mr
'15

See also Cloth-sample books; Coats; Iron-
lery; Textile industry and fabrics; Under-
wear

Clothing trade

British India. U S Sp Cons Rep 72:259-65 '15

Club rooms

Rooms of the Bankers' club of America. II Arch
& Bldg 47:184-7 My '15

Clubhouses

Addition to the New York Harvard club.
J. T. Boyd, Jr. II diags Arch Rec 38:616-30
J '15

Boston city club, Somerset street, Boston.
Mass.; views and plans. Brickb 24:77, pl 31-6
Mr '15

Church club house, St. Paul, Minn. II plans
Brickb 24:169-70 J1 '15

Country-club houses. II. D. Sherleyn. II plans
Arch Rec 38:206-27 Ag '15

Folk's club house, Brooklyn, N. Y.; views and
plans. Brickb 24:77, pl 37-9 Mr '15

Modern equipment in Detroit athletic club.
II diag plan Metal Work 84:37-9+, 73-6 J1
9-16 '15

Musicians' mutual relief society building, Bos-
ton. II plans Brickb 24:126-8 My '15

New building for the T-square club, Philadel-
phia. Pa. J. F. Harbison. II plans Brickb
24:253-4 O '15

Plumbing work in Harvard club of New York.
II plan Metal Work 84:605-7 N 12 '15

Three Arts club, Chicago; views and plans.
Brickb 24:pl 112-14 Ag '15

Yale club's new house. M. Wilcox. II plans
Arch Rec 33:310-42 S '15

See also Club rooms

Clutches

Allowable friction values; effect of the speed
of rotation on the operation of a friction
clutch. L. D. Pinkney. Mach 21:793-4 Je '15

Combined friction and positive clutch. II Iron
Age 95:239 J1 28 '15

Design of friction clutches of the split-ring
type. W. J. Walker. diag Langloer 118:610-11
D 25 '14

Lodge safety self-oiling clutch. II Textile
World 48:631-2 Mr '15; Power 41:801 Je 15 '15

Friction clutch for power hammers. diag Iron
Age 95:1069 My 13 '15

Hillard friction clutch. II diag Mach 21:509 F
'15

Hillard rack-and-pinion clutch shifter. II
Power 41:706 My 25 '15

Ideal multi-cone clutch. diag Power 41:533 Ap
20 '15

Sheet working machinery clutch. II Iron Age
95:183 Ja 21 '15

Clyde river

Improvement of the river Clyde and harbour
of Glasgow, 1873-1914. T. Mason. Engineer
119:277 Mr 19 '15

Coal

Absorption of oxygen by coal. W. F. Winnill.
Colliery 36:147-52 O '15

Anthracite and bituminous production, 1914.
Colliery 35:381 R '15

Chart for coal purchasers. W. V. Bowles.
Power 41:200 R 9 '15

Clinkering of coal. L. S. Marks. diags Am
Soc M E J 37:205-8 Ap '15; Same. Power 40:
932-4 D 20 '14; Discussion. Am Soc M E J
37:208-14 Ap '15

Coal and its economical use. P. S. Thompson.
Inst B 19 J 53:184-7 J1 15 '15; Abstract.
Elec W 65:422-3 F 13 '15; Discussion. Inst
B 19 J 53:187-90 J1 15 '15

Coal shortage in Europe. W. S. Illatt. Ry Age
59:476 S 10 '15

Coals and coal fields of the Rocky mountain
region. I. C. Mills. Colliery 36:137-41 O '15

Caking of coal at low temperatures with spe-
cial reference to the properties and com-
position of the products. H. W. Farr and
H. L. Olin. II Ill U Engng Exp Sta Bul 79:1-39
'15; Same cond. Iron Tr R 57:1027-34 N 25
'15

Composition and qualities of coal. M. C. Jeff-
rey. II Leon Coal 9:730-42 I '14

Coal factors in coal production. W. H. Grady.
diags Am Inst Min B Bul 101:1035-64; Dis-
cussion. 101:1064-72; 103:1469-70 My, J1 '15

Finding the best coal. C. W. Hubbard. Power
41:206 R 9 '15

Fossil resins in coal. Colliery 35:521-2 My '15

Fossils of aid to the coal prospector. Colliery
35:499-500 Ap '15

Future methods of utilizing coal. C. F. Harsh-
field. Power 41:488-9 Ap 6 '15; Same. Sci Am
S 80:558-9 J1 24 '15

Iron a factor in the world's progress. J. Bir-
kibine. J Fr Inst 179:476-9 Ap '15; Excerpt.
Sci Am S 80:328 N 20 '15

Kind of coal produced in the United States.
Sci Am S 80:32 J1 10 '15

New knowledge of coal. Engng Rec 71:159 R 6 '15

New knowledge of coal and its practical appli-
cation. II. C. Porter. J Ind & Engng Chem 7:
239-42 Mr '15

Oklahoma smokeless coals. M. F. Hackett.
map Colliery 35:593-5 Je '15

Origin, occurrences, and behavior of the gases
usually found in mines. F. Haas. Colliery
35:375-9 R '15; Discussion. 35:436-41, 483-5,
501-2 Mr-Apr '15

Production of coal in the eight principal coal-
mining countries in the world, from 1870 to
1913. J. Birkibine. J Fr Inst 179:487-8 Ap
'15

Purchase of coal. M. B. Smith. Power 41:235-6
R 16 '15

Purchasing coal on heat unit basis. Sci Am S
79:403 Je 26 '15

Rank of coal-producing states. Sci Am S 80:
119 Ag 21 '15

Scheme for weighing coal during stoker trials.
diag Elec W 66:695 S 25 '15

Simplified method of determining cost of coal
per 1000 lb. of steam; chart. W. H. Schott.
Elec W 66:754-6 O 2 '15; Same. Power 42:
466-8 S 28 '15; Same. Eng & Min J 100:836-8
O 16 '15

Coal—Continued

- Sulphur in coal. Elec W 65:350-1 F 6 '15
 Unit coal. Sci Am S 79:397 Je 19 '15
 Use of coal and production of cheap power.
 W. F. Reid. Power 42:318 Ag 31 '15
 Use of thickness contours in the valuation of
 lenticular coal beds. G. S. Rogers and C. E.
 Leshner. maps Econ Geol 9:707-29 D '14
 Variation in coal constituents for similar B.T.U.
 values. H. D. Jackson. Power 41:441 Mr 30
 '15
 Waste in the selection and purchase of coal.
 G. B. Gould. Eng M 49:850-61 S '15
 Why do you wet coal on the forge? L. K.
 Hirschberg. Colliery 35:414 Mr '15
 Wood and coal as fuel for steam boilers. L. B.
 Reynolds. tables Sibley J 30:14-20 O '15

See also Briquets; Clinkers; Coal ashes;
 Coal handling; Coal lands; Coal mines and
 mining; Coal-tar colors; Coal-tar products;
 and other headings beginning Coal; Coalings;
 Coning stations; Coke; Fuel economy; Gas;
 Lignite

Analysis

- Analysis of coal with phenol as a solvent.
 S. W. Parr and H. P. Hladky. II diagrs III U
 Ing Exp Sta Bul 78:1-41 '14; Abstract. Am
 Soc M 10 J 37:128-9 F '15
 Comparison of various modifications of the
 Kjeldahl method with the Dumas method
 of determining nitrogen in coal. A. C. Field-
 ner and G. A. Taylor. J Ind & Eng Chem 7:
 106-12 F '15; Same. U S Bur Mines Tech Pa
 641-22 '15
 Phenol for coal analysis. Sci Am S 79:339 My
 29 '15
 Sampling and analysis of coal. A. C. Fieldner.
 diagrs U S Bur Mines Tech Pa 761-58 '14
See also Coal sampling

Clinkers

See Clinkers

Specifications

- Outline specification of coal. M. B. Smith.
 Power 42:770 N 30 '15
 Purchase of coal on specifications. Power 42:
 47 J1 13 '15

Testing

See Coal testing

Transportation

- Anthracite coal rates reduced in Pennsylvania.
 Ity Age 57:1195 D 25 '14
 Decision on anthracite rates. Ity R 57:215,
 250-3 Ag 14-21 '15
 Decision on transportation of railroad fuel. Ity
 R 57:269 Ag 28 '15
 Hearings on western freight rate advances.
 Ity Age 58:740-2 Ap 2 '15
 Reductions ordered in rates on anthracite coal.
 Ity Age 58:313-18 Ag 20 '15
 Too much prosecution of the anthracite rail-
 roads. Ity R 58:18-19 Ja 2 '15

Coal, Pulverized

- Anaconda coal-pulverizing plant. M. P. Math-
 ews. II plan Eng & Min J 100:45-8 J1 10 '15
 British Portland cement making machinery.
 II diagrs Engineer 120:102-5 J1 30 '15
 Coal-dust fired reverberatory at Washoe re-
 duction works. L. V. Bender. Am Inst Min E
 Bul 97:73-81 Ja '15; Abstract. Am Soc M 10 J
 37:188-9 Mr '15; Abstract. Met & Chem Eng
 13:184 Mr '15
 Coal-dust fired reverberatory furnaces; discus-
 sion of the papers of D. H. Brown, L. V.
 Bender and R. E. H. Pomeroy. Am Inst Min
 E Bul 101:1174-86 My '15
 Coal-dust fired reverberatory furnaces of Can-
 adian copper co. D. H. Brown. diagrs Am
 Inst Min E Bul 97:49-60 Ja '15; Same cond.
 Met & Chem Eng 13:182-4 Mr '15; Abstract.
 Am Soc M 10 J 37:187 Mr '15
 Comparative furnace efficiency. L. J. Wolf-
 laner. Met & Chem Eng 13:357-61 Ja '15
 Comparison of the economy of powdered coal,
 oil and water gas for heating furnaces. C. F.
 Herington. Eng N 72:1156-8 D 10 '14
 Feeding reverberatory furnaces along the side
 walls. D. H. Brown. Eng & Min J 99:412-13
 F 27 '15

- Firing with coal dust. E. B. Wilson. Col-
 liery 36:125-7 O '15
 Modern plant for rolling iron: St. Louis screw
 co. II. C. West. II diagrs plans Iron Tr R
 57:82-9+ J1 8 '15
 New iron mill equipped to assure low costs.
 C. J. Abell. II diagrs plan Iron Age 96:71-7
 J1 8 '15
 New system for burning powdered coal in
 metallurgical furnaces. C. F. Herington. II
 plans Eng N 73:1028-30 My 27 '15
 Powdered coal. W. L. Robinson. Ity Age 58:
 1055-6 My 21 '15; Summary, with discussion.
 Ity R 56:696-7 My 22 '15
 Powdered coal as central-station fuel. Elec R
 & W Elec N 67:115-16, 193 J1 17, 31 '15
 Powdered coal for heating furnaces. C. F.
 Herington. II plan Iron Age 94:1045-8 N 5
 '14; Abstract. Ind Eng 14:472 D '14
 Powdered coal for steam boilers. Elec Ity J
 45:1014-15 My 29 '15
 Powdered coal, its preparation and use in
 locomotives and stationary boilers. W. L.
 Robinson. Ity R 56:772-6 Je 5 '15; Abstracts.
 Ity Age (Mech ed) 89:271-3 Je '15; Power 41:
 793-4 Je 8 '15; Colliery 35:646-8 J1 '15; Eng
 & Min J 100:19 J1 3 '15; Sci Am S 80:139
 Ag 28 '15
 Powdered coal plant at Anaconda. L. V.
 Bender. II diag Met & Chem Eng 13:333-5
 My '15
 Powdered coal preparation and firing in Ger-
 many. II diagrs Am Soc M 10 J 37:648-50 N
 '15
 Problems in burning powdered coal. A. S.
 Mann. II diagrs Gen Elec R 18:920-4, 959-65
 S-O '15; Same. Iron Age 96:632-1 S 16 '15
 Pulverized coal burning in the cement indus-
 try. R. C. Carpenter. II diagrs plan Am Soc
 M 10 J 36:337-46 O '14; Abstract. Ind Eng
 14:331-3 Ag '14; Abstract. Colliery 35:529-30
 My '15
 Pulverized coal for steam making. E. R. Low.
 diagrs Power 40:35-8 J1 7 '14; Same. Am Soc
 M 10 J 36:346-52 O '14; Same cond. Ind Eng
 13:333-6 Ag '14; Abstracts. Colliery 35:530-2
 My '15; Heat & Ven 12:31 7 Ag '15
 Pulverized fuel for locomotives. Ity Age 58:941-
 3 Ap 30 '15; Same. Ity Age (Mech ed) 89:
 213-15 My '15; Same cond. Eng M 40:440-1
 Je '15
 Raw coal in blast furnaces. Iron Age 96:525
 S 2 '15
 Steamships burn pulverized coal. Metal Work
 81:137 O 1 '15
 Storage of powdered coal. E. J. Kelly. Eng
 & Min J 100:312-13 Ag 21 '15

Coal ashes

- Feasibility of coal ash in mixtures of hydrogen
 and water vapor. A. C. Fieldner and A. L.
 Field. II diagrs J Ind & Eng Chem 7:742-7
 S '15
 Feasibility of coal ash in various atmospheres.
 A. C. Fieldner and A. E. Hall. diagrs J Ind
 & Eng Chem 7:399-106, 471 81 My-Je '15
 Loss of combustible in ashes. Power 42:683-4
 N 16 '15
 New method and furnace for the determina-
 tion of the softening temperature of coal
 ash under fuel-bed conditions. A. C. Field-
 ner and A. L. Field. II diagrs J Ind & Eng
 Chem 7:820-25 O '15

See also Clinkers

Coal breakers

- Coal breaker and scraper. J. P. Conduff. II
 diag Power 42:502-3 O 12 '15
 Rapid erection of steel coal breaker. C. S.
 Phillips. II Eng N 74:1-2 J1 1 '15

Coal companies

- United States mining statutes annotated;
 Sherman antitrust act coal companies.
 J. W. Thompson. U S Bur Mines Bul 94:
 pt 2, 1235-6 '15

Coal cutters

- Track work with center cutting machines. II
 diagrs Colliery 36:28-9 Ag '15

Coal distillation

- Letter from Norton H. Humphrys, Salisbury,
 England. Am Gas Light J 102:346-6 My 31 '16
 Maximum contents of hydrocarbons in pro-
 ducer gas; abstract. F. Hoffmann. Am Soc
 M 10 J 37:603 O '15

Coal distillation—Continued

Mode of decomposition of coal by heat. H. C. Porter and G. B. Taylor. *diag* Am Gas Inst Pro 9:pt 1, 234-83; Discussion, 9:pt 1, 283-8 '14

Bibliography

Bibliography of the chemistry of gas manufacture. W. F. Rittman and M. C. Whitaker. U S Bur Mines Tech Pa 120:5-7 '15

Coal docks. See Coal handling

Coal drying

Centrifugal coal drier. II *diag* Iron Tr R 56:

673 Ap 1 '15

Drying of coal for briquetting. II *Eng M* 48: sup1-3 F '15

Coal dust

American coal-dust investigations. G. S. Rice. *Colliery* 36:39-42 Ag '15

Coal-dust explosion experiments. J. D. Morgan. *diag* *Colliery* 35:549-51 My '15

Field coal-dust explosion gallery. II *Colliery* 35:605 Je '15

Humidity of mine air. R. Y. Williams. II map U S Bur Mines Bul 83:1-63 '14

See also Coal, Pulverized

Coal dust as fuel. See Coal, Pulverized

Coal gas. See Gas

Coal handling

Alternating-current coal holst. R. E. Brown. II Am Inst E E Pro 34:615-22 Ap '15; Abstract, with discussion. *Elec R & W Elec* 66:781-3 Ap 24 '15; Discussion, Am Inst E E Pro 31:2895-914 N '15

Big consumer's storage yard: handling large quantities of coal at the New York Edison co.'s plant at Shadyside, N. J. J. P. Springer. II *Colliery* 35:345-8 F '15

Bituminous coal storage. II *Colliery* 35:231-5 D '14

Car dumping machines on the Hocking Valley railway's coal dock, Toledo, Ohio. II *Ry R* 56:207 F 13 '15

Coal and ash handling at the gorge plant of the Northern Ohio traction & light co. A. I. Williams. II *diag* *Power* 42:398-400 S 21 '15

Coal handling at Panama. II plans *Power* 42: 106-10 J 27 '15; Abstract, *Eng M* 50:441-3 D '15

Coal loading plant at Workington harbour. II *diag* *Engineer* 120:16 J 2 '15

Coal pier with car-dumping machine at Sandusky. II *diag* *Eng* N 73:165-7 Mr 11 '15

Coal-washing barries. II *Power* 41:17 Ja 5 '15

Electrically operated coal plant. II *Elec W* 65: 994-5 Ap 17 '15

Electricity in a coal-handling plant. R. M. Tule. II *elec R & W Elec* N 65:1166-8 D 19 '14

Export coal terminal of the Southern railway at Charleston, S. C. II *Ry R* 57:620-1 N 13 '15; *Iron Age* 96:974-5 O 28 '15

Fuel stations: committee report. *diag* *Ry R* 56:679-82 My 22 '15; *Ry Age* 58:1060-1 My 21 '15; *Ry Age* (Mech ed) 89:275-7 Jo '15

Improved performance with old-type coaling facilities. J. S. Williams. *Ry Age* (Mech ed) 89:66 F '15

Improvements in small coaling stations. II *diag* *Eng* N 74:300-1 Ag 12 '15

Italian machine for loading coal tenders. II *Sci Am* 113:225 S 11 '15

Large coal handling gantry crane. II *Iron Tr R* 57:442 S 2 '15

Mechanical handling of coal and ashes in the power plant. C. G. Brinley. II *diag* *Eng M* 49:872-87; 50:65-77 S-(C) '15

New coal dock for the Cincinnati, Hamilton & Dayton at Toledo. II plan *Ry Age* 59:273-4 Ag 13 '15; Same. *Ry R* 57:236-9 Ag 21 '15; Same cond. *Eng Rec* 72:163-4 Ag 7 '15

New Southern railway coaling pier at Charleston, S. C. II plan Int Marine *Eng* 20:151-3 Ap '15

Pennsylvania coal dock at Sandusky. II plan *Ry Age* 57:1189-91 D 25 '14

Rapid car dumping plant, Toledo, O. II *Iron Age* 95:1388 Jo 24 '15

Rapid coal handling plant on the lakes. II Int Marine *Eng* 20:358 Ag '15

River terminal at East St. Louis, Ill. *diag* *Eng* N 74:543 S 16 '15

Telphers expedite coal movement at German plant. A. Gradenwitz. II *Eng Rec* 71:615 My 15 '15

Toledo coal dock built in record time. II plan *Eng N* 74:520-2 S 9 '15

White power-hoisting coal body. II *Automobile* 32:423 Mr 4 '15

See also Coaling; Coaling stations

Coal lands

Abstracts of current decisions on mines and mining, October, 1914, to April, 1915. J. W. Thompson. U S Bur Mines Bul 101:8-9 '15

Appraisal of coal land for taxation. H. M. Chance. Am Inst Min R Bul 91:1461-6 J 1 '14; Discussion, 100:868-70 Ap '15

Coal fields of South America. W. G. Burroughs. *Colliery* 36:30-1, 72-3, 153-5 Ag-O '15

Principle of coal evaluation. R. W. Coulthard. *Colliery* 36:22 Ag '15

Russia—its future as a coal and iron producer. C. R. King. map *Eng* N 48:481-92 Ja '15

Status of Alaska coal land leasing. *Eng & Min* J 99:850 My 15 '15

United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:pt 1, 724-828; pt 2, 887-97 '15

Valuation of coal lands. F. C. Welles. *Colliery* 36:161-2 O '15

Valuation of coal lands. W. M. Fohl. *Colliery* 36:164-5 S '15

See also Coal mines and mining

Coal meters

Recording power plant operations. J. C. Smallwood. II *diag* *Eng M* 49:818-36 S '15

Coal miners

Investments in iron river district with particular reference to welfare work. C. A. Tupper. II *Iron Tr R* 56:769-64-1 Ap 15 '15

Methods of adjusting mining rates. L. Huck. *Colliery* 35:349-53 F '15

Miners' minimum wage in Yorkshire. *Engineer* 119:66-7 Ja 15 '15

Miners' wage crisis. *Engineer* 119:284-5 Mr 10 '15

Miners' wages and hours: the West Yorkshire mining dispute. *Engineer* 119:140 F 5 '15

Plan for the West Virginia miner. M. W. Jordan. II *Colliery* 35:310-12 Ja '15

Welfare work at Glen White. G. D. Evans. II *Colliery* 35:473-5 Ap '15

What the miners are aiming at—nationalization. *Engineer* 120:94 J 23 '15

Coal mines and mining

Arching in collieries. R. G. Clark. *diag* *Colliery* 35:293-6 Ja '15

Boller plant of the Bessemer coal and coke company: using as fuel a mixture of coal and slate. W. O. Rogers. II *diag* plan *Power* 41:798-801 Jo 15 '15

Carney-Cherokee coal co.'s stripping. W. S. Russell. *Colliery* 36:173-4 O '15

Central-station power in coal-mining operations. T. R. Day. II *Eng M* 48:851-18 Mr '15

Coal mine engineer. G. O. Klepper. *Colliery* 36:93-5 S '15

Coal mined by machines. M. W. Parker. *Sci Am* 57:305 Jo 19 '15

Coal mining problem: hydraulic stowage. *Engineer* 118:626 D 4 '14

Coal stripping in Illinois. II *Colliery* 36:69-72 S '15

Coal stripping in Kansas. W. Z. Price. II *Colliery* 36:285-8 Ja '15

Colliery repair shops. W. Z. Price. II *Colliery* 35:269-71 D '14

Competition and legal restraint of cooperation in coal mining. *Ry R* 56:478-9 Ap 3 '15

Cost factors in coal production. W. H. Grady. *diag* Am Inst Min R Bul 101:1025-04; Discussion, 101:1004-72; 102:1469-70 My, J 1 '15

Dewatering an anthracite mine. W. Z. Price. II *diag* *Colliery* 36:87-90 S '15

Efficiency in coal mining. G. S. Brackett. *Colliery* 35:588-92 Jo '15

Gas and oil wells through coal seams: discussion. Am Inst Min R Bul 100:846-58 Ap '15

Labor factor in bituminous mines. G. S. Brackett. *Colliery* 36:99-100 S '15

Lucarno power plant and tipple of the Rockwell & Pittsburgh coal and iron co. C. M. Young. II *Colliery* 36:1-6 Ag '15

Coal mines and mining—Continued

- Mining institute meetings: winter meetings of the Illinois coal mining institute, the Coal mining institute of America, and the Kentucky mining institute. *Colliery* 35:325-8 *Ja* '15
- Mining steep thick coal beds. W. G. Whildin. *diags* *Colliery* 35:354-64 *P* '15
- Practical economy at coal mines. L. G. Hauger. *Colliery* 35:128-31 *O* '15
- Questions selected from those asked at an examination for mine foreman, held in Price, Utah, September 15 and 16, 1914. *Colliery* 35:217-20, 276-9, 338-41 *N* '14-*Ja* '15
- Rock work in coal mines. *diags* *Colliery* 35:237-40 *D* '14
- Stresses in the mine roof. L. D. Hall. *diags* *Am Inst Min E Bul* 105:2013-21 *S* '15
- Stripping at the National colliery. *diags* *Colliery* 35:598-9 *Je* '15
- Surveying in anthracite mines. W. Z. Price. *diag* *Colliery* 35:461-4, 541-3 *Ap*-*My* '15
- Theory of the arch in mining. B. S. Randolph. *Colliery* 35:127-9 *Mr* '15
- See also* Coal dust; Coal handling; Coal lands; Coal mining machinery; Mining engineering

Accidents and explosions

- American coal-dust investigations. G. S. Rice. *Colliery* 35:39-42 *Ag* '15
- Coal-dust explosion experiments. J. D. Morgan. *diag* *Colliery* 35:549-51 *My* '15
- Coal-mine explosions caused by gas or dust. H. N. Ravenscroft. *Am Inst Min E Bul* 94:2637-60 *O* '14; *Discussion*, 100:879-85 *Ap* '15
- Dangerous months in coal mining. *Colliery* 35:309 *Ja* '15
- Drowning at Higashimikono colliery. S. Meguro. *diags* *Colliery* 35:19 *Ag* '15
- Fatalities at coal mines during 1914. A. H. Fay. *Colliery* 35:504-5 *Je* '15
- Fatalities at coal mines during 1911 compared with previous years. *Sci Am* 112:228 *Mr* 0 '15
- Fatalities in coal mines caused by explosives; table. A. H. Fay. *U S Bur Mines Tech Pa* 107:14 '15
- Hillcrest, Alberta, explosion: a description of the mine, the ventilation, and general conditions. *Colliery* 35:318-20 *Ja* '15
- Hogo coal mine, in Japan. S. Meguro. *diags* *Colliery* 35:575-80, 637-43 *Je*-*Ja* '15
- Layland, W. Va., mine disaster. *diags* *Colliery* 35:556-8 *My* '15
- Limits of mining under heavy wash. D. Bunting. *diags* *plan* *Am Inst Min E Bul* 97:1-21 *Ja* '15; *Discussion*, 101:1187-9 *My* '15
- Methods of preventing and limiting explosions in coal mines. G. S. Rice and L. M. Jones. *diags* *plan* *U S Bur Mines Tech Pa* 84:1-42 '15
- Occurrence of explosive gases in coal mines. N. H. Burton. *diags* *map* *U S Bur Mines Bul* 72:1-237 '15
- Roof falls in the northern anthracite fields. *Colliery* 35:386 *P* '15
- Roylton mine explosion. *diags* *plan* *Colliery* 35:263-8 *D* '14
- Safe use of electricity in coal mining. W. M. Thornton. *Sci Am S* 78:398-400 *D* 15 '14
- Tripp shaft disaster. W. Z. Price. *diag* *Colliery* 35:321-2 *Ja* '15

See also Coal mines and mining—Safety measures; Mine rescue work

Explosives

- Permissible explosives tested prior to March 1, 1915. S. P. Howell. *U S Bur Mines Tech Pa* 100:1-14 '15
- Tolerances in tests of permissible explosives. *J Ind & Eng Chem* 7:716-17 *Ag* '15

Government ownership

- Government ownership and the miner. M. I. Bailey. *Colliery* 35:490-1 *Ap* '15

Safety measures

- Electric shot firing in Kansas. C. B. Carpenter. *diag* *Colliery* 35:596-8 *Ja* '15
- Firedamp detector; abstracts. H. R. Webster. *diag* *Eng M* 49:108-9 *Ap* '15; *Colliery* 35:67-8 *S* '15

- Gas-detecting apparatus. W. G. McMillan. *Colliery* 35:611 *Je* '15
- Humidity of mine air. R. Y. Williams. *diags* *U S Bur Mines Bul* 83:1-63 '14
- Method of preventing and limiting explosions in coal mines. G. S. Rice and L. M. Jones. *diags* *plan* *U S Bur Mines Tech Pa* 84:1-42 '15
- Protective system for coal mines. N. D. Levin. *diags* *Colliery* 35:135-6 *O* '15
- Safety inspection system of the Susquehanna coal co. G. C. Curtis. *Colliery* 35:607-8 *Je* '15
- Safety methods and organization of United States coal & coke co. H. N. Ravenscroft. *Am Inst Min E Bul* 98:413-30 *P* '15; *Discussion*, 101:1075-95 *My* '15
- Shot firing in coal mines by electric circuit from the surface. G. S. Rice and H. H. Clark. *Am Inst Min E Bul* 94:2563-71 *O* '14; *Discussion*, 100:885-91 *Ap* '15
- What a miner can do to prevent explosions of gas and of coal dust. G. S. Rice. *U S Bur Mines Tech* 21:1-21 '15
- See also* Mining engineering—Safety measures

Alaska

- Chignik bay, Alaska, coal fields. W. R. Crane. *diags* *map* *Colliery* 35:457-61 *Ap* '15

British Columbia

- Comox mines, Vancouver Island. R. C. La Netland. *diags* *map* *Colliery* 35:559-63 *S* '15

Canada

- Coal resources of Canada. F. D. Adams. *Colliery* 35:627-9 *Je* '15

Illinois

- Early days of coal mining in Illinois. W. Rutledge. *diag* *Colliery* 35:112-4 *O* '15

Japan

- Hogo coal mine, in Japan. S. Meguro. *diags* *map* *Colliery* 35:575-80, 637-43 *Je*-*Ja* '15

Kentucky

- Advantages of the western Kentucky field. F. V. Ruckman. *Colliery* 35:188-9 *Ap* '15
- Harlan coal field in southeastern Kentucky. R. J. Sampson. *Colliery* 35:371-4 *P* '15
- Harlan, Ky., coal field. W. R. Peck. *Colliery* 35:649-56 *Ja* '15
- Plant of Yellow creek coal co. R. J. Sampson. *Colliery* 35:498-9 *Ap* '15

Montana

- Bull mountain coal field, Montana. J. P. Rowe and R. Wilson. *map* *Colliery* 35:7-11, 74-9 *Ag*-*S* '15

Nova Scotia

- Sydney, Cape Breton, coal field; climatic conditions necessitating storage; large operations extending under the sea. J. F. Springer. *diags* *Colliery* 35:641-5 *Ja* '15

Oklahoma

- Oklahoma smokeless coals. E. F. Hackett. *map* *Colliery* 35:592-5 *Ja* '15

Pennsylvania

- Mining in the broad top coal field. W. Z. Price. *diags* *map* *Colliery* 35:517-21 *My* '15
- New Lawrence colliery. L. C. Madelrn. *diags* *Colliery* 35:52-3 *S* '15
- Workable coal seams of western Pennsylvania. *Colliery* 35:297 *Ja* '15

South America

- Coal fields of South America. W. G. Burroughs. *map* *Colliery* 35:552-3, 643-4 *My*, *Ja* '15

Spitzbergen

- Arctic coal; preliminary success of American interests in Spitzbergen. M. R. Barr. *Eng M* 49:760-1 *Ag* '15
- Coal mining in Spitzbergen. *Eng & Min J* 100:672-3 *O* 23 '15
- Heat from Our Lady of the snow; coal-mining in the Arctic circle. H. J. Shapstone. *diags* *Sci Am* 112:180 *P* 13 '15

Coal mines and mining—Continued**West Virginia**

- Coal mining in West Virginia. J. E. Coleman. *Il Sibley J* 30:21-7 O '15
 E. M. White coal company mines. G. D. Evans. *Il Colliery* 35:401-7 Mr '15
 Operations in the New River field. W. Z. Price. *Il Colliery* 35:533-7+ My '15

Coal mines and mining, Submarine

- Sydney, Cape Breton, coal field; climatic conditions necessitating storage; large operations extending under the sea. J. F. Springer. *Il Colliery* 35:581-5 Je '15

Coal mining Institute of America

- Annual winter meeting in Pittsburg, Dec. 8-9. *Il Colliery* 35:326-8 Ja '15

Coal mining machinery

- Biggest steam shovel; excavator built for stripping coal beds. *diagm Engg M* 50:452-3 D '15
 Coal mined by machines. M. W. Parker. *Sci Am S* 79:395 Je 19 '15
 Improved coal mining machinery. *Il Colliery* 35:452-4 Mr '15

See also Coal cutters

Coal piers. See Coal handling**Coal preparation**

- Benefits to be derived from standard practice in the preparation of coal. H. C. Adams. *Ry R* 57:41-2 Ji 10 '15
 Plant of Yellow creek coal co. R. J. Sampson. *Il Colliery* 35:498-9 Ap '15
 Standardization of coal preparation; abstracts. H. C. Adams. *Ry Age* 58:1060 My 21 '15; *Ry R* 58:698 My 22 '15

See also Coal drying; Coal washing

Coal sampling

- Method of obtaining representative coal samples. *diag Elec W* 66:366 Ag 14 '15
 Principles of coal sampling. S. W. Parr. *Sci Am S* 80:15-16 Ji 3 '15
 Proposed tentative method for the sampling of coal. *Power* 42:34-5 Ji 6 '15
 Sampling and analysis of coal. A. C. Mieldner. *diag U S Bur Mines Tech R'n* 76:1-58 '14

Coal storage

- Big consumer's storage yard; handling large quantities of coal at the New York Edison co.'s plant at Shadyside, N. J. J. F. Springer. *Il Colliery* 35:345-8 Je '15
 Bituminous coal storage. *Il Colliery* 35:231-5, 298-302 D '14-Ja '15
 Cleveland adopts steel coal and sand storage bins. *Il diag Elec Ry J* 46:1001-2 N 13 '15
 Coal handling at Panama. *Il plans Power* 42:106-10 Ji 27 '15; *Abstract. Engg M* 50:441-3 D '15
 Land storage of bituminous coal; the ever present factor of spontaneous combustion; abstract. (1). R. Crapo. *Am Soc M E J* 37:612 O '15

- Railway coal-storage plants. *plans Engg N* 74:592-3 S 23 '15

- Storage of coal. *Ry Age* 58:1116-19 My 28 '15

- Storage of coal; abstract. (1). G. Bell. *Elec W* 66:76-6 Ji 10 '15

- Storage of powdered coal. *Id.* J. Kelly. *Engg & Min J* 100:312-13 Ag 21 '15

- Sydney, Cape Breton, coal field; climatic conditions necessitating storage; large operations extending under the sea. J. F. Springer. *Il Colliery* 35:581-2 Je '15

See also Coal tanks

Coal tanks

- Concrete lining for steel bunkers. *Il Power* 40:512 D 8 '14

Coal tar

- Coal gas residuals. F. H. Wagner. *diag Am Gas Light J* 101:306 N 16 '14; *Sumo, Met & Chem Engg* 12:697-8 N '14; *Sumo, Sci Am S* 80:316-17 N 13 '15

- Coking of coal at low temperatures with special reference to the properties and composition of the products. M. W. Parr and H. L. Olin. *Il U Engg Exp Sta Bul* 79:18-23, 28, 36-9 '15; *Same cond. Iron Tr R* 57:1031-2 N 25 '15

- Fractional collection of crude tar. G. T. Purves. *diag Am Gas Light J* 102:387-90 Je 21 '15

- New knowledge of coal tar. H. C. Porter. *Sci Am S* 79:222-3 Ap 3 '15

- New method of utilizing lignite coal tar; abstract. V. Schon. *Am Soc M E J* 37:403-4 Ji '15

- Use of coal tar in flotation. W. A. Mueller. *Engg & Min J* 100:591-3 O 9 '15

See also Tar

Coal-tar colors

- Aniline dye situation. *Met & Chem Engg* 13:829-30 N 15 '15

- Aniline dye situation. I. F. Stone. *Met & Chem Engg* 13:863-71 O 1 '15

- Coal-tar dyes and the Paige bill; compulsory working of patents. B. C. Hesse. *J Ind & Engg Chem* 7:963-74; *Discussion. H. H. Stonebraker; R. C. Hesse. J* 7:974-8 N '15

- Development of coal-tar dyestuffs. *Textile World* 49:362-4 Je '15

- Dyestuff famine. T. H. Norton. *Il Sci Am* 113:400+ N 6 '15

- Dyestuff situation and its lesson. A. D. Little. *J Ind & Engg Chem* 7:237-9 Mr '15; *Sumo. Sci Am S* 79:278-9 My 1 '15

- Government co-operation with our industries. *Sci Am* 112:99 Ja 30 '15

- Identifying amino-11-acids. R. C. Hesse. *J Ind & Engg Chem* 7:674-5 Ag '15

- Industry of the coal-tar dyes. B. C. Hesse. *map J Ind & Engg Chem* 6:1013-27 D '14; *Excerpts. Am Gas Light J* 101:401-6 D 28 '14

- Let's we forget! Who killed Cock Robin? Tho H. S. tariff-history of coal-tar dyes. R. C. Hesse. *J Ind & Engg Chem* 7:694-709 Ag '15

- Manufacture of aniline colors in the United States. L. F. Stone. *Textile World* 49:236-9 My '15

- Manufacture of coal-tar crudes. *Sci Am S* 80:261 O 23 '15

- Recommendations of the New York section of the American chemical society on the enlargement of the coal tar chemical industry in the United States. *J Ind & Engg Chem* 6:972-5 D '14

- Two problems of the coal tar dye industry. R. C. Hesse. *Textile World* 49:226-8 My '15

- Who killed Cock Robin? notes on the tariff history of coal-tar dyes. *Sci Am S* 80:135 Ag 28 '15

- Why America does not manufacture aniline dyes. H. McCormack. *Inland Pr* 54:545-7 Ja '15

See also Dye industry; Dyes and dyeing; Petroleum

Coal-tar products

- Carbolic acid and creosote; with chart. H. H. Alcock. *Am Gas Light J* 103:58-9 Ji 26 '15

- Coal-tar chemical industry in Germany and America. *Sci Am S* 80:240 O 9 '15

- Coal-tar products and the possibility of increasing their manufacture in the United States. H. C. Porter. *U S Bur Mines Tech R'n* 80:1-19 '15; *Excerpt. Engg M* 49:428 Ja '15

- Explosives from tar. *Am Gas Light J* 102:279, 282 My 3 '15

- Explosives from tar products. V. B. Lewis. *Am Gas Light J* 102:197 Mr 30 '15

- Extraction of carbolic acid from oils of the distillation of coal tar. W. Mason. *diag Met & Chem Engg* 13:293-4 My '15

- Outline of the coal tar chemical industry. *Sci Am S* 80:147 S 4 '15

- Position of the American tar distiller. *Sci Am S* 80:387 Ag 7 '15

- Possibilities for coal tar industry. R. V. Sawhill. *Iron Tr R* 56:4-6 Ja 7 '15

- Present production of crude tar products. *Sci Am S* 80:286 Ag 7 '15

- Status of the chemical industries in the United States at the end of 1915. I. F. Stone. *J Ind & Engg Chem* 7:991-3 N '15; *Sumo. Sci Am S* 80:286-7 O 30 '15

See also Benzol; Coal-tar colors; Gas; Toluol

Coal testing

- Factors governing the combustion of coal in boiler furnaces; a preliminary report. J. K. Clement. J. C. W. Frazer and C. E. Augustine. *Il diag U S Bur Mines Tech R'n* 63:1-41 '14; *Excerpts. Sci Am S* 79:359 Je 5 '15

Coal testing—Continued

- Fuel-supply contracts and the progress of more scientific methods of purchase and control in America and Europe. J. B. C. Kershaw. *Met & Chem Eng* 13:393-6 Je '15
- Fusibility of coal ash in various atmospheres. A. C. Fieldner and A. M. Hall. *diag J Ind & Eng Chem* 7:399-406 My '15
- Sub-bituminous coal and sawmill waste in producer plant. G. S. Wilson. *Il Power* 42:442-3 S 28 '15
- United States mining statutes annotated; coal testing acts. J. W. Thompson. *U S Bur Mines Bul* 94:pt 1, 826-8 '15
- See also Coal—Analysis

Coal trade

- Central stations taking advantage of slump in coal market. *Elec R & W Elec'n* 66:109-10 Ja 16 '15
- Coal fields of South America. W. G. Burroughs. *map Colliery* 35:552-3, 643-4 My, Ji '15
- Foreign markets for coal. *U S Sp Cons Rep* 69:1-24 '15
- Fuel conditions in South America. J. W. Hardy. *Ity Ago* 58:1056-7 My 21 '15
- Production of coal. *Engineer* 120:370 O 15 '15
- United States coals available for export trade. V. H. Manning. *map U S Bur Mines Bul* 76:1-14 '14
- United States foreign coal trade: the production, the consumption, and export facilities of the different countries of the world. R. W. Parker. *Colliery* 35:486-8 Ap '15
- Wages and profits in the coal trade. *Engineer* 119:436-7 Ap 30 '15

Coal washing

- Automatic slate control. *diag Colliery* 35:260 D '14
- Coal washer efficiency. G. R. DeFumeter. *Colliery* 35:337 Ja '15
- Effect of washing Kansas coal. A. A. Potter. *Power* 40:901 D 22 '14
- English coal washing plant at Barugh. *diag Colliery* 35:252-4 D '14

Coaling

- Mayo system for coaling ships. *Il Int Marine Eng* 30:122-4 Mr '15
- English ship-coaling machine. *diag Eng N* 74:649 S 30 '15

Coaling at sea

- Coaling United States warships. *Il diag Sci Am N* 79:276-7 My 1 '15
- Refueling warships at sea; abstract. S. Miller. *Int Marine Eng* 20:17-18 Ja '15

See also Coaling vessels

Coaling stations

- Cableway coaling station. *Il plans Ity Ago* 58:330 F 19 '15
- Coaling and winding station on the Virginian railway at Mineora. P. F. Harrington. *Il diag Eng Rec* 71:22-3 Ja 2 '15
- Coaling stations for the economical handling of 25 to 50 tons per day. *Ity Ago* 59:759 O 22 '15
- Concrete coaling station, L. & N. R. R., Lebanon Junction, Ky. *Il diag Ity R* 59:586-7 Ap 17 '15
- Fire hazards at coaling stations. *Ity Ago* (Mech ed) 89:592 N '15
- Fuel stations; committee report. *diag Ity R* 58:879-82 My 22 '15; *Ity Ago* 58:1060-1 My 21 '15; *Ity Ago* (Mech ed) 89:275-7 Je '15
- Improvements in small coaling stations. *Il diag Eng N* 74:300-1 Ag 12 '15
- Large coaling stations on the Panama canal. *Il diag Eng N* 74:254-6 Ag 5 '15
- Locomotive coaling plant at Camden Town. *Il diag Engineer* 119:344 Ap 2 '15
- Locomotive coaling plants of the Roberts & Schaefer type. *Il Ity R* 58:853-4 My 15 '15
- New Southern railway coaling pier at Charleston, S. C. *Il plan Int Marine Eng* 20:161-3 Ap '15
- Railway coal-storage plants. *plans Eng N* 74:592-3 S 23 '15
- Schrader shallow pit coaling station. *plan Ry R* 56:364-5 Mr 13 '15
- Shallow-pit coaling station. *plan Eng N* 74:743 O 14 '15
- Snow coaling station with car unloader. *Il diag Ity R* 57:25-6 Ji 3 '15

- Snow locomotive coaling station. *diag Ry R* 56:566-7 Ap 24 '15

Coaling vessels

- U. S. collier Jason as a Christmas ship. *Il Int Marine Eng* 20:32-3 Ja '15

- Coast and geodetic survey. See United States—Coast and geodetic survey

- Coast artillery. See Artillery

Coast defense

- Actual and theoretical ranges of the United States coast defense guns. *Sci Am* 112:472 My 23 '15
- Increasing the range of our coast defense guns. *Sci Am* 113:159 Ag 21 '15
- Lesson of the Queen Elizabeth. *Sci Am* 112:263 Mr 20 '15

See also United States—Defenses

- Coast erosion. See Erosion

- Coast protection. See Shore protection

- Coasting. See Electric railroads—Coasting

Coats

- Knitting silk plated coats. *Textile World* 40:361 Je '15
- Shaker coats for girls. *Il Textile World* 48:415-16 Ja '15

Cobalt

- Applications of metallic cobalt: experiments conducted with cobalt and copper alloys. D. B. Browne. *Metal Ind n s* 12:509-10 D '14
- Chemical and mechanical relations of iron, cobalt and carbon. J. O. Arnold and A. A. Read. *Iron Age* 95:953 Ap 29 '15
- Cobalt and nickel assay. S. Fischer, Jr. *Met & Chem Eng* 12:773-4 D '14
- Electroplating with cobalt. C. H. Buchanan and T. Hadow. *Metal Ind n s* 13:210-2 Je '15
- Electroplating with cobalt. H. T. Kalmus, C. H. Harper and W. L. Savell. *J Ind & Eng Chem* 7:379-99 My '15; *Excerpts* (Conclusions). *Met & Chem Eng* 13:328-9 My '15; *Elec R & W Elec'n* 66:873 My 8 '15; *Summary, Eng M* 49:422-3 Je '15
- Iron-cobalt alloy. *IEE* 67:40, and its magnetic properties. T. D. Yensen. *Il Gen Elec R* 18:881-7 S '15
- Physical properties of the metal cobalt. H. T. Kalmus and C. Harper. *Il J Ind & Eng Chem* 7:6-17 Ja '15

Cobalt steel

- Material for accelerating machine tool speeds and output. *Sci Am N* 79:379 Je 12 '15

- Code of principles. See American electric railway association

Coffee

- Detoxication of coffee. *Sci Am* 112:292 Mr 27 '15

Coffee mills

- Brass working ingenuity of the Arabs of the desert; a pocket coffee-mill. L. Lodian. *Il Metal Ind n s* 13:108 Mr '15
- Electric coffee mill. *Il Elec W* 66:1219 N 27 '15

Coffee plantations

- Hydro-electric installation on a coffee plantation. J. H. Torrens. *Il Gen Elec R* 18:219-22 Mr '15; *Same cond, Eng M* 49:266-7 My '15

Cofferdams

- Concrete pile and cylinder foundations at Charleston. *Il diag Eng N* 74:226-9 N 11 '15
- Contract methods and equipment for a typical Ohio river dam. K. H. Schriver. *Il diag plan Eng N* 72:806-11 Ap 29 '15
- Notable step in the building of New York's great piers; cofferdamming the North river. G. G. Skerrett. *Il Sci Am* 113:109-1 Ag 21 '15
- Progress on 46th street pier coffer-dam. New York city. *Il Eng N* 72:908 My 6 '15
- Reconstruction of piers of Little Rock Junction bridge across the Arkansas river. C. B. Smith. *diag Eng & Contr* 44:124-5 Ag 18 '15
- River crossings on the Niagara pike line. W. C. Milen. *Il Munic J* 38:219-51 F 25 '15
- Unmanageable coffer-dam leak handled by freezing. *Il plan Eng N* 72:778-9 Ap 22 '15
- Wood cofferdams with bottoms sunk for bridge in swamp. C. E. Jones. *diag Eng Rec* 71:534-5 Ap 24 '15
- Work to start in deep cofferdam for New York pier. *Il diag Rec* 71:664-5 My 22 '15
- See also Bridges—Foundations and piers
Piles and pile driving

- Coffin, Howard Earle, 1873-**
Sketch. por Eng M 50:221 N '15
- Cohoes Falls, New York**
Central hydroelectric plant of 50,000 horse-power replaces inefficient separate units at Cohoes. G. Hillberg. II diag maps Eng Rec 71:353-4, 395-8 Mr 20-27 '15
Hydro-electric development. W. O. Rogers. II plans Power 42:466-71 O 5 '15
Hydro-electric development of the Cohoes company at Cohoes, N. Y. B. R. Connell. II diag plans map Gen Elec R 18:340-52 My '15
Redevelopment of old canal power. II diag plan Eng N 73:456-9 Mr 4 '15
- Coils**
Choke coils and disconnecting switches. diag Elec Ry J 46:29 J1 3 '15
Coil-winding unit. O. P. Chubbuck. II Elec Ry J 45:1213 Je 26 '15
Differential method for the determination of losses in coils. A. Hund. diag Elec W 65:1300-1 My 22 '15
Hints on the impregnation of railway motor coils. II Elec Ry J 45:429 P 27 '15
Process of impregnating coils; and a large, modern impregnating plant. It. Itold. II Gen Elec R 18:48-51 Ja '15
Rewinding direct-current motors and generators. A. A. Fredericks. diag Power 42:76-8, 116-18, 148-50 J1 20-Ag 3 '15
- Coils, Induction.** See Induction coils
- Coils, Reactance.** See Reactance coils
- Coke**
Causes of coke troubles in the foundry. Iron Age 94:1348-9 D 10 '14
Coke as a fuel under boilers. (I. Wirthwein. Am Soc M 10 J 37:558-9 S '15
Coke as fuel under boilers; abstract. II. Markgraf. diag Am Soc M 10 J 37:609-10 O '15
Coke in gas producers. Iron Age 95:464 Ag 26 '15; Same. Am Gas Light J 103:186-8 O 15
Coke production in 1914. Iron Tr R 57:964b-964c N 11 '15
Coke recovered from the cupola dump. W. J. Kepp. Iron Tr R 56:332-3 P 18 '15
Coking of coal at low temperatures with special reference to the properties and composition of the products. S. W. Parr and H. L. Olin. III U Eng Exp Sta Bul 79:1-39 '15; Same cond. Iron Tr R 57:1027-31 N 25 '15; Abstract. Met & Chem Eng 13:639 S 15 '15
Connellsville coke prices for fifteen years. Iron Age 95:14 Ja 7 '15
Conversion of non-coking fuels. Am Gas Light J 103:284 N 1 '15
Experience with a by-product coke oven plant. C. C. Boardman. II Am Gas Light J 103:289-94 My 10 '15
Fixed calorific standard - a new use for gas coke. N. H. Humphrys. Am Gas Light J 102:73-4 P 1 '15
Gas work for large heating systems. II. Rehn. Metal Work 84:179 Ag 6 '15
How to burn coke. Am Gas Light J 102:173 Mr 15 '15
Improvement in by-product foundry coke. C. S. Lomax. Iron Age 95:1116-18 My 20 '15; Same. Iron Tr R 57:361-2 Ag 19 '15
Large installation of by-product coke ovens on Tyneside. II diag Engineer 119:486-8 My 14 '15
Making by-product coke. II. C. Kestep. II diag Iron Tr R 55:1171-8 P 12 '14
Metallic iron in coke samples. J. R. Campbell. Colliery 35:538-41 My '15
Republic company's by-product coke plant. II plan Iron Age 94:1433-8 D 24 '14
Standard specifications for the foundryman. Foundry 42:258, 260-1 J1 '15
Tall reinforced concrete coke house in Rotterdam, Holland. II Eng & Contr 44:229-30 S 22 '15
Wasteful coke production. Metal Work 84:282 Ag 27 '15
See also Coal; Coke oven gas; Coke ovens
- Cost**
By-product coke in New York. Colliery 35:485 Ap '15
- Coke breeze**
Coke-breeze briquettes; abstracts. F. T. Behr. J Ind & Eng Chem 7:718 Ag '15; Am Gas Light J 103:134 Ag 30 '15
- Use of coke breeze as concrete aggregate. W. M. Kinney; A. M. Wolf. Concrete Cem 7:115-16 S '15
- Coke oven gas**
By-product coke oven gas for Chattanooga. Munic Eng 48:136 P '15
Experience with a by-product coke oven plant. C. C. Boardman. II Am Gas Light J 102:289-94 My 10 '15
Municipality buys coke-oven gas. Am Gas Light J 101:413 D 28 '14
Utilization of waste heat for the generation of electrical energy. II. Hobson. diag Inst E E J 53:845-6 Jo 15 '15
Valuable products recovered from coke oven gases. II diag Sci Am 112:379-80 Ap 24 '15
- Coke ovens**
Application of by-product coke ovens to the gas industry. J. D. Forrest. Am Gas Light J 102:186-9 Mr 23 '15
Blast-furnace gas for coke ovens. O. Simmersbach. Ind Eng 15:29-30 Ja '15; Same. Iron Age 95:242-3 Ja 28 '15; Same. Am Gas Light J 102:135-7 Mr 1 '15
By-product ovens at Baltimore, Md. II Am Gas Light J 102:27-8 Ja 11 '15
Carbonization in bulk - Koppers' ovens. (I. J. Hamsburg. II diag Am Gas Inst Pro 9:pt 1, 543-501; Discussion. 601-14 '14
Deterioration of fireclay goods in ovens and retorts. T. Holgate. Am Gas Light J 103:113-18 Ag 23 '15
Improvements in beehive ovens. II Colliery 35:247-8 D '14
Improvements in by-product foundry coke. C. S. Lomax. Iron Age 95:1116-18 My 20 '15; Same. Iron Tr R 57:361-2 Ag 19 '15
Large installation of by-product coke ovens on Tyneside. II diag Engineer 119:486-8 My 14 '15
Machine for cleaning ascension pipes. diag Am Gas Light J 103:51 J1 20 '15
Making by-product coke. II. C. Kestep. II diag Iron Tr R 55:1171-8 P 12 '14
Manufacture and tests of silica brick for the byproduct coke oven. K. Soaver. II Am Inst Min 10 Bul 105:1913-27 S '15; Same. Met & Chem Eng 13:861-6 N 15 '15
Mechanical doors vs. brick doors, on beehive coke ovens. Colliery 35:644-6 J1 '15
Model of a Koppers byproduct-coke plant at the United States national museum, Washington, D. C. II Eng & Min J 100:470 S 18 '15
Temperature conditions in coke ovens. O. Simmersbach. Am Gas Light J 103:51 Ja 25 '15
Valuable products recovered from coke oven gases. II Sci Am 112:379-80 Ap 24 '15
See also Coke oven gas
- Accidents**
Coke-oven accidents in the United States during the calendar years 1913 and 1914. A. H. Fay. II S Bur Mines Tech Pa 118:1-15 '15; Excerpt (Coke-oven accidents, 1913). Colliery 35:409 Mr '15
- Cold light**
Theory of cold light. W. L. Dunroft. Illum Eng Soc 10:289-95 no 4 '15; Same. Am Gas Light J 103:27-8 J1 12 '15; Same. Sci Am S 80:186-7 S 18 '15
- Cold storage**
Air ozonation. M. W. Franklin. J Ind & Eng Chem 6:853-4 O '14; Same. Am Soc Heat & V 10 20:350-4 '14
Excessively dry air in cold stores; abstract. W. D. Sawers. Am Soc M 10 J 37:52-3 Ja '15
Insulate huge concrete building for cold storage in Chicago. Eng Rec 72:662-3 N 27 '15
Pre-cooling of Canadian fruits. G. South. Am Soc M 10 J 37:190-1 Mr '15
See also Refrigeration and refrigerating machinery; Refrigerator cars
- Collecting of accounts**
Billing and collecting systems of small companies. Elec R & W Elec'n 67:184-6 J1 31 '15
Campaign to reduce delinquency: a five-year record by the American gas & electric company's properties. Elec W 65:998-6 Ap 17 '15
'Results, collections and cash discounts. W. H. Vliet. Elec R & W Elec'n 67:106-7 J1 17 '15
Getting the money. G. M. Rittelmeyer. Metal Work 83:532-3 Ap 9 '15

Collecting of accounts—Continued

- Office clerk problems—collections. C: Fried. Inland P'tr 56:186-8 N '15
Should the salesman collect money? E. E. Whitehorse. Elec W 66:921-3 O 23 '15
Three C's lead to business success. Metal Work 83:221-2 F 5 '15

Collective bargaining. See Trade agreements**College architecture**

- Gilman hall and Mechanical and electrical engineering building, Johns Hopkins university; views and plans. Brickb 24:pl 136-43 O '15
Gymnasium, Dartmouth college, Hanover, N. H.; designs. Brickb 24:pl 54-5 Ap '15
New home of Johns Hopkins university. J: M. Hammond. II Arch Rec 37:481-92 Ja '15
Washington university, St. Louis, Missouri. C. Study. II plan Arch Rec 37:64-75 Ja '15
See also Dental colleges

College buildings

- Central generating system for University of Michigan. II plans Elec W 66:646-51 Mr 13 '15
End framing for armory at University of Illinois and some general features of this structure. II diag Eng & Contr 43:141-3 F 17 '15
See also College architecture; Dental colleges

College education

- Education for railway work. S: O. Dunn. Ity Age 59:907-9 N 12 '15

College students

- Enlarging the worth of the worker and the perspective of the employer. J. P. Channing. II Am Inst Min 19 Jul 99:529-38 Mr '15; Excerpt (Student engineers teach workmen). Iron Age 56:554-5 Mr 11 '15; Discussion. Am Inst Min 19 Jul 101:1095-9 My '15
Student life at Stevens. It. F. Homhan. Stevens Ind 32:67-63 Ja '15

Colleges and universities

- See also* Academic freedom; College buildings; College students; Engineering bureaus; Engineering colleges; Scholarships; also Throop college of technology

Collisions at sea

- Stability of vessels as affected by damage due to collision. W: Gatewood. Int Marine Eng 20:156-8 Ap '15
Suction between passing ships. S. A. Roove. diag Sci Am 8 79:30-2, 46-8, 62-4 Ja 9-23 '15
See also Salvage

Colloids

- Action of certain colloids on ions during electrolysis. A. Mutscheller. diag Met & Chem Eng 13:353-7 Je '15
Coagulation of arsenious sulfide sol by electrolysis. J. Mukhopadhyay. Am Chem Soc J 37:2024-31 S '15
Colloidal bituminous pavement. II Munic J 38:807-8 Je 10 '15
Colloids in relation to manipulation of structural materials. C. Richardson. Munic Eng 48:360-2 Ja '15
Electric synthesis of colloids. J. Mukhopadhyay. Am Chem Soc J 37:292-7 F '15
Interesting application of colloidal chemistry. D. T. Pierce. Met & Chem Eng 13:408-9 Jl '15
Neutralization of adsorbed ions. W. D. Bancroft. Met & Chem Eng 13:318-19 My '15
New method of preparation and some interesting transformations of colloidal manganese dioxide. E. J. Witzemann. Am Chem Soc J 37:1079-91 My '15
Relative migration velocities of the ions in complex electrolytes. A. Mutscheller. Met & Chem Eng 13:433-42 Jl '15
Theory of the perfect sheet asphalt surface. C. Richardson. J Ind & Eng Chem 7:463-5 Ja '15
See also Catalysis

Colombia

- Taxes in Colombia. J. F. Dierolf. Eng & Min J 99:874 My 15 '15

Industries and resources

- Nechi mines (Colombia) Ltd. Eng & Min J 99:244-5 Ja 30 '15

- Pato property of Oroville dredging company. W. A. Prichard. Eng & Min J 99:231-4 Ja 30 '15

- Placers of Antioquia, Colombia. It. W. Perry. II map Eng & Min J 100:585-9 () 9 '15

Colonial architecture. See Architecture, Colonial Color

- Artificial daylight. H. E. Ives. bibliog II J Fr Inst 177:471-99 My '14; Same. Sci Am 8 78:396-8, 412-14 D 19-26 '14
Standardized colored fluids. II. V. Army and C. H. King. J Fr Inst 180:190-213 Ag '15

- See also* Coal-tar colors; Colorimeters and colorimetry; Dyes and dyeing; Light; Light, Colored; Painting; Pigments; also headings beginning Color

Color blindness

- Standard tests for color blindness. II Ity Age 58:222-3 F 5 '15

Color filters. See Light filters**Color in architecture**

- Color in architecture at the Panama-Pacific exposition. W: L. Wollert. II Arch Rec 37:437-44 My '15
Texture and color at the Panama-Pacific exposition. P. E. Denivelle. II Arch Rec 38:562-70 N '15

Color matching

- Gaseous-conductor lamp for color matching; abstracts. D. M. Moore. diag Elec W 66:1160 N 20 '15; Elec It & W Elec N 67:949 N 20 '15; Met & Chem Eng 13:885 D 1 '15

Color music

- Art of mobile color. M. Luckiesh. II Sci Am 8 79:408-9 Je 26 '15
Color music; the color organ used in Scriabine's symphony Prometheus. II. C. Plummer. II Sci Am 112:343-4 Ap 10 '15

Color photography

- Color photography. M. C. Ryplinski. bibliog II Hum Eng Soc 9:579-92 no 7 '14; Same. Sci Am 8 79:131-5 F 27 '15
Color sensitized plates. Sci Am 8 79:240 Ap 10 '15
Development and recent advances of the technographic arts. L: B. Levy. II J Fr Inst 180:402-6 O '15
Important development in color photography; the kachachrome process of color portraiture. Sci Am 112:341-4 Ap 10 '15
Photographs in natural colors. Sci Am 112:562-4 Je 5 '15
Progress in color photography. Sci Am 8 79:381 Je 12 '15
See also Moving pictures, Colored

Color printing

- Black and red. J. L. Frazier. Inland P'tr 54:371-2 D '14
Dividing the form for colors. J. L. Frazier. Inland P'tr 55:213-16 My '15
Outgrowths of letterpress: color cards for the paint and varnish trade. G: Sherman. II Inland P'tr 54:490-3 Ja '15
See also Color photography

Color sense

- Method of correcting abnormal color vision and its application to the flicker photometer. II. E. Ives and E. P. Kingsbury. Hum Eng Soc 10:259-70 no 3 '15

Color tests

- Color used in hydraulic tests of power plants. It. Taylor. diag Eng N 74:617-20 S 23 '15

Colorado

- See also* Gilpin county, Colorado; Mines and mineral resources Colorado

Industries and resources

- Bituminous shales of Colorado. G. R. DeBeque. II Eng & Min J 99:773-4 My 1 '15

Colorado & Southern railway

- 15th annual report. map Ity Age 57:1034-5, 1069-70 D 4 '14

- Sixteenth annual report. map Ity Age 59:997-8, 1037-8 N 26 '15

Colorado electric light, power & railway association

- 13th annual convention. Glenwood Springs, Sept. 22. Elec W 66:792-3 () 9 '15

- Colorado fuel and iron company**
Safety-first, first-aid and welfare work of the Colorado fuel and iron company. *Il Met & Chem Eng* 13:234-8 Ap '15
- Colorado river**
Reservoir sites on the Colorado river. L. C. Hill. map *Eng Rec* 70:670-1 D 19 '14
- Colorado school of forestry**
Courses of study. *Il Am For* 21:650-2 My '15
- Colored light.** See **Light, Colored**
- Colorimeters and colorimetry**
Color of illuminants; with discussion. L. A. Jones. *diag Illum Eng Soc* 9:687-709 no 8 '14
- Colors**
Analysis of chrome yellows and greens. A. Given. *J Ind & Eng Chem* 7:324 Ap '15
See also **Color**, and references under that subject
- Columbia highway**
Bridges and viaducts on the Multnomah county section of the Columbia river highway. *Il Good Roads* n 10:243-7 N 6 '15
- Columbia highway in Oregon.** *Il: L. Bowlby. Il Eng N* 73:62-4 Ja 14 '15
- Oregon's state highways.** *Il. M. White. Il Munic J* 39:249-52 S 2 '15
- Reinforced concrete bridges along the Columbia highway in Oregon.** K. P. Illiner. *Il diag Eng & Contr* 43:121-3 F 10 '15; Same. *Eng N* 72:1146-8 D 10 '14
- Columbia university**
New advanced course in electrical engineering at Columbia university. W. I. Schleier. *Il Gen Elec R* 18:940-4 O '15
- School of mines**
Address at testimonial dinner. *Il: S. Munroe. Eng & Min J* 99:998-1001 Je 5 '15
- Columbium**
Notes on solum columbates; the atomic weight of columbium. E. P. Smith and W. K. Van Hugen. *diag Am Chem Soc J* 37:1783-97 Ag '15
- Columbus, Georgia**

Water supply
Works for the improved water supply of Columbus. plans *Eng & Contr* 42:406-8 N 25 '14

Columbus, Ohio
City and state power plants at Columbus. T. Wilson. *Il Power* 42:322-6 S 7 '15

Bridges
Design features of the Alger bridge, a 1,160-ft. reinforced concrete structure. *diag Eng & Contr* 44:206-9 S 15 '15

Floods
Engineering lessons from the Ohio floods. J. W. Alvord. *Il Boston Mos C* 12 J 1:85-108; Discussion. 1:109-17 Mr '14

Lighting
Decision for municipal light plant. *Power* 41:354-5 Mr 9 '15

Sewerage
Contract plans for sewer work at Columbus. *Eng N* 74:1034-5 N 25 '15

Low river flow exacting for Columbus sewage works. *Eng Rec* 71:402 Ap 17 '15

Water supply
Columbus waterworks makes its own alumina revolutionary step in water purification practice. C. P. Hoover. *Il plan Eng Rec* 71:576-7 My 8 '15; Same. *Eng & Contr* 43:448-9 My 10 '15

Water purification in Columbus. C. P. Hoover. *Munic Eng* 49:101-2 S '15

Columbus railway and light co.
System of the Columbus railway and light co. *Il Power* 42:330-41 N 7 '15

Columb footings
Reinforced-concrete footings economically designed. N. M. Stineman. *Eng Rec* 72:240 S 4 '15

Reinforced-concrete footings economically designed. W. A. Hoyt. *Eng Rec* 72:458 () 9 '15

Reinforced-concrete footings of special construction. *diag Eng Rec* 72:355-6 S 13 '15

Columns
Anchoring base plates for columns. D. N. Becker. *Eng Rec* 70:626 D 5 '14

Anchoring base plates for columns. E. F. Allbright. *Eng Rec* 70:678 D 19 '14

Column design for steel and wood construction. *Il Eng Rec* 71:233 F 20 '15

Compression formulas for metal columns. *Eng Rec* 71:416-17 Ap 3 '15

Curves for strength and deflection of very long columns. R. L. Robinson. *Eng N* 73:1108-9 Je 10 '15

Data on the strength and elastic properties of concrete-filled pipe columns. F. W. Swain and A. P. Holmes. *Eng & Contr* 44:184-5 S 8 '15

Making square-paneled porch columns. *Il Bldg Age* 37:41 O '15

Nomographic solutions for formulas of various types. R. C. Strachan. *Eng Rec* 71:807-9 Je 26 '15

Waste of metal in mill-building columns. C. L. Christensen. *Eng N* 73:590-1 Mr 25 '15
See also **Architecture**; **Poles**; also **Perry memorial**

Columns, Concrete
American concrete institute's tests on concrete columns. *Eng N* 73:524-7 Mr 18 '15

Column forms hold 30 feet of wet concrete. P. A. McGandy. *Il diag Eng Rec* 71:470 Ap 10 '15

Concrete column tests disclose effects of longitudinal and spiral reinforcement. *diag Eng Rec* 71:527-9 Ap 24 '15

Concrete columns plain, rodged and hooped. R. Godfrey. *Eng Rec* 71:339-40 Mr 13 '15

Economy in the design of reinforced concrete columns. P. J. Waldram. *Engineer* 120:22-30, 52-4 J 9-16 '15

Field methods in concrete construction—column forms. J. Cochran. *diag Concrete Cem* 6:187-9 Ap '15

New steel and concrete structure to furnish nearly sixteen acres of floor space; Bingham warehouse in Cleveland. *diag Eng Rec* 72:357 S 18 '15

Reinforced concrete column formulae. C. Gayler, H. C. Toensfeldt, and G. W. Martin. *Amn Eng Soc J* 54:94-9 F '15; Discussion. 54:150-8 Ap '15

Reinforcing concrete columns to carry additional stories. P. E. Prufert. *Il diag Eng N* 74:410-11 Ag 26 '15
See also **Poles, Concrete**

Columns, Steel
Results of recent tests of steel columns presented and discussed. *Eng Rec* 71:549-50 My 1 '15

Steel column tests. *Eng Rec* 71:574 My 8 '15

Strength of columns sought by full-size tests. *Eng Rec* 71:136 Ja 30 '15

Tests of structural columns; record of work done at Bureau of standards. *Il diag Iron Tr* 15:567-9 J Mr 18 '15

Combustion
Calculating dry flue-gas loss. C. W. Hubbard. *Power* 42:746-8 N 30 '15

Combustion calorimetry and the heats of combustion of cane sugar, benzoic acid, and naphthalene. H. C. Dickinson. *hbling U S Bur Stand Bul* 11:189-257 Mr 1 '15

Combustion in locomotive fireboxes. J. P. Neff; J. T. Anthony. *diag Ry Age* 58:255-7 Ja 8 '15; Same cond. *Ry Age* (Mech ed) 89:10-11 Ja '15

Combustion of coal in domestic heaters. R. W. Thavenport. *Metal Work* 83:928-9 Je 25 '15

Factors governing the combustion of coal in boiler furnaces; a preliminary report. J. K. Clement, J. C. W. Frazer and C. E. Augustine. *Il diag U S Bur Minn Tech* 121 63:1-41 '14; Abstracts. *Sci Am* 8 79:359 Je 5 '15

Flame and combustion. W. A. Bone. *Engineer* 120:257 O 15 '15

Heats of combustion of aromatic hydrocarbons and hexamethylene. T. W. Richards and E. Barry. *Il Am Chem Soc J* 37:993-1020 My '15

How much CO₂ to expect with various kinds of fuel. V. J. Azbe. *Power* 42:712-14 N 23 '15

Combustion—Continued

- Notes on fans. A. A. Potter and S. L. Simmering. *Power* 41:818 *Je* 15 '15
 Rapid organic combustions. M. Reimer. *Am Chem Soc J* 37:1636-8 *Je* '15
 Relation of factors influencing combustion. C. W. Hubbard. *Power* 42:313-14 *Ag* 31 '15
See also Fuel; Mechanical draft; Smoke

Combustion, Spontaneous. See Spontaneous combustion**Combustion, Surface**

- Design of surface combustion appliances. C. E. Lucke. *diag*s *Sch Mines Q* 36:95-122, 233-48 *Ja-Apr* '15; *Abstract. Met & Chem Eng* 13:729 *O* 15 '15
 Surface combustion appliances. *Il Mach* 21:768-9 *My* '15

Comfort stations. See Public comfort stations**Commerce**

- Mainstreams of seaborne commerce; map. *Eng & Min J* 99:141 *Ja* 16 '15

See also Accounting; Advertising; Banks and banking; Business; Business depression; Competition; Credit; Export trade; Government regulation of industry; International law; Interstate commerce; Interstate commerce commission; Manufactures; Monopolies; Partnership; Railroads; Rivers; Salesmen and salesmanship; Shipping; Tariff; Trusts, Industrial; Waterways; also names of countries, subhead Commerce, also European war—Commercial and financial aspects

Commercial associations

- Commercial organizations in France. A. J. Wolfe. *U S Bur For & Dom Com* 98:1-75 '15
See also American international corporation; Chambers of commerce

Commercial correspondence

- Supervision of postage stamps. *Horselows Ago* 35:262 *R* 24 '15
See also Sales letters

Commercial crises. See Panics**Commercial law**

- Anti-dumping legislation in Canada, South Africa, and Australia. *Textile World* 50:176-9 *N* '15
 Australia anti-dumping law. *Iron Ago* 96:887 *O* 14 '15
 Commercial laws of England, Scotland, Germany and France. A. J. Wolfe and E. M. Borchard. *U S Bur For & Dom Com* 97:1-106 '15
See also Arbitration, Industrial; Contracts; Landlord and tenant; Negotiable instruments; Partnership; Property; Public service corporations; Sales; Trusts, Industrial

Commercial paper. See Negotiable instruments**Commission on industrial relations. See United States—Commission on industrial relations****Commissions**

- Commission plan for control of public works. *Eng N* 73:1186-8 *Ja* 17 '15
 Limitations of government by commissions. *Ry Ago* 52:220 *R* 5 '15

Community courts. See Apartment houses**Commutation (electricity)**

- Commutation at overloads; abstract. M. Walker. *diag*s *Mec W* 66:819-20 *O* 9 '15
 Criteria for the quality of commutation; examination of those proposed by Arnold and Hohart. J. F. H. Douglas. *Mec W* 66:601-2 *Mr* 6 '15
 Factors affecting commutation. A. H. Brame. *diag*s *Power* 41:836-8 *Je* 22 '15

Commutators

- Cleaning commutators. *diag*s *Mec R & W Elec'n* 67:760, 899 *O* 23, *N* 13 '15
 Emery around a dynamo. B. J. Oppenheim. *Power* 41:275-6 *R* 23 '15
 Emery around a dynamo. W. Weaver. *Power* 40:885 *D* 15 '14
 Filling holes in commutator. L. L. Pollard. *diag*s *Power* 41:690 *My* 13 '15
 Gas heater for commutators. R. H. Parsons. *diag*s *Mec Ry J* 46:280-1 *Ag* 14 '15
 Graphite brushes. *Colliery* 36:167-8 *O* '15
 High mica commutator trouble. *Automobile* 32:1078 *Je* 17 '15

Los Angeles commutator slotter. E. L. Steph-

- ens. *Il Mec Ry J* 46:321-2 *Ag* 21 '15
 Physical limitations in D-C commutating machinery. B. G. Lammie. *Am Inst E E Pro* 34:1659-1614 *Ag* '15

Polyphase commutator machines and their application. N. Shuttleworth. Inst E E J

- 53:439-57; *Discussion*. 53:457-66, 805-8 *Mr* 15, *Je* 1 '15

Schweitzer multiplex brush for commutators

- and collector rings. *Il Mec R & W Elec'n* 67:382 *Ag* 28 '15

Self-lubricating brush substitute. P. Justus.

- diag*s *Power* 42:619 *O* 13 '15

Slotting commutators in the motor shell. J. G.

- Koppel. *diag*s *Mec Ry J* 45:847 *My* 1 '15

Troubles encountered in the operation of carbon brushes in direct-current generators

- and motors. E. H. Martindale. *Il Am Inst E E Pro* 34:373-84 *Mr* '15; Same cond. *Power* 41:568-9 *Ap* 20 '15; Same cond. *Engincor* 119:468-9 *Mr* 7 '15; Same cond. (Causes of poor commutation and remedies) *Il Mec W* 66:863-4 *Ap* 3 '15; *Discussion. Am Inst E E Pro* 34:2966-74 *D* '15

Turning commutators in the power house.

- H. L. Loucks. *diag*s *Ry Ago* (Mech ed) 89:470 *S* '15

What commutator appearance indicates. V. A.

- Clarke. *Power* 42:514-15 *O* 12 '15

What the operator should know about slotted commutators. Mec W

- 66:756 *O* 2 '15

See also Dynamoes; Electric motors

Company stores. See Cooperation**Compass**

- Compass surveying. R. Bowen. *Colliery* 35:417-18 *Mr* '15
See also Gyro-compass

Compass, Prismatic

- Prismatic compass. *Il diag Sci Am S* 79:356 *Je* 6 '15

Compensators. See Electric transformers; Phase**advancers****Competition**

- Game of killing off your competitor. J. C. Morrison. *Inland Ptr* 51:510-1 *Ja* '15
See also Monopolies; Trusts, Industrial

Competition, Unfair

- First indication of what the courts will consider unfair competition under recent laws. E. J. Buckley. *Mec R & W Elec'n* 67:296 *Ag* 14 '15

French law on unfair competition. D. C. Poole,

- jr. Textile World* 49:643-4 *S* '15

Law as to unfair competition and imitation

- of labels and dress of goods. *Dom Eng* 73:177 *N* 6 '15

Composing machines. See Typesetting machines**Composing sticks**

- History of composing-sticks. W. Selk. *Il Inland Ptr* 54:239-40 *Mr* '15

Compound words

- Careless punctuation. W. P. Root. *Inland Ptr* 54:636-8 *R* '15

Compounds and use of the hyphen. F. H.

- Tenll. *Inland Ptr* 55:343-4 *Ja* '15

Further elements in the use of hyphens. W.

- Illec. *Inland Ptr* 55:663-4 *Ag* '15

Go-as-you-please English. F. H. Tenll. Inland

- Ptr* 55:82 *Ap* '15

Use of the hyphen. F. H. Tenll. Inland Ptr

- 54:347-50 *D* '14

Compressed air

- Air cooling plant, New York Central R. R., Mott Haven yard, New York. M. Purcell and M. F. Gannon. *Il plans Ry R* 56:703-5 *My* 22 '15

Bihn-Jones automatic air device for raising

- or handling large quantities of liquids. *diag*s *Met & Chem Eng* 13:878-7 *N* 15 '15

Caulking lead joints with compressed air at

- Waltham, Mass. *Eng & Contr* 42:290-1 *S* 23 '14

Compressed air as source of power; advan-

- tages of pneumatic power tools. C. O. Phelps. *Metal Work* 42:822-4 *D* 25 '14

Compressed air moulding machine. Il diag

- Engineer* 119:189-90 *R* 19 '15

Compressor plant and pipe line arrangements

- for Sandy Ridge tunnel lining; plan. *Ry R* 57:331 *S* 11 '15

Compressed air—Continued

- Fighting the sea with compressed air. R. G. Skerrett. *Il Sci Am* 113:97 Ja 30 '15
- Floating a stranded ship on air; refloating the steamship Zeeland. R. G. Skerrett. *Il Sci Am* 113:84 Ja 23 '15
- How compressed air saved the steamship Floriston. R. G. Skerrett. *Il diag Int Marine Eng* 20:270-1 Je '15
- Moisture in yard testing plants. *Ry Age (Mech ed)* 89:395-6 Je '15
- Pneumatic track tamping. *Il Eng Rec* 70:689 D 26 '14
- Records of operation in handling concrete with compressed air. *Il diag Concrete Cem* 5:260-3 D '14
- Refloating the steamship Zeeland by compressed air. R. G. Skerrett. *Int Marine Eng* 20:87-8 F '15
- Return-pipe compressed-air practice. F. Richards. *Power* 41:224-5 F 16 '15
- Tunnel lining by compressed air. *Il Ry Age* 57:1143-4 D 18 '14
- Using compressed air to clean sand out of driven wells at Detroit. *Il Eng & Contr* 44:386 N 17 '15
- See also* Air compressors; Air lifts; Pneumatic tools; Pneumatic tubes; Vacuum cleaning

Cost

- Cost of compressed air. T. F. Crawford. *Ry Age (Mech ed)* 89:364-5 J1 '15

Compressed air meters

- Automatic air meter for foundries. *Il Foundry* 43:168 Ap '15; *Ry Age* 58:455 Mr 12 '15; *Iron Age* 95:737 Ap 1 '15; *Eng & Min J* 99:1077-8 Ja 19 '15
- Compressed-air meter. *Il Eng & Min J* 98:1100-1 D 19 '14
- Meter for measuring rate of flow of compressed air. *Il Sci Am* 113:364 (-) 23 '15

Compressibility

- Compressibilities of mercury, copper, lead, molybdenum, tantalum, tungsten and silver bromide. T. W. Richards and R. P. Bartlett. *diag Am Chem Soc J* 37:470-81 Mr '15
- Concerning the compressibilities of the elements, and their relations to other properties. T. W. Richards. *Am Chem Soc J* 37:1043-56 J1 '15
- Present aspect of the hypothesis of compressible atoms. T. W. Richards. *Biblog Am Chem Soc J* 36:2417-39 D '14

See also Elasticity**Compressing machines**

- Hydraulic ring compressing machine. *Il Iron Age* 94:1443 D 24 '14

Compressors. *See* Air compressors; Ammonia compressors**Compulsory education**

- Pennsylvania's new compulsory continuation schools. H. M. Miles. *Am Ind* 16:28-9 N '15

Computing machines. *See* Calculating machines**Comstock lode**

- Comstock lode in 1914. *Eng & Min J* 99:155-8 Ja 16 '15
- Men and machinery of the Comstock—pioneer hoisting works. C. W. Dickie. *Il Eng & Min J* 98:1130-4 D 26 '14
- Men and machinery of the Comstock—the combination shaft. C. W. Dickie. *Il Eng & Min J* 98:990-4 D 5 '14

Concentrating tables

- Development of ore concentration. II: A. Marvin. *Il Eng M* 49:222-5 My '15
- Development of the Butchart riffle system at Morenci. D. Cole. *Il diag Am Inst Min E Bul* 98:431-44 F '15; *Excerpt. Met & Chem Eng* 13:332 My '15; *Discussion. Am Inst Min E Bul* 101:1123-8 My '15
- Riffing for concentrating tables. *Il Met & Chem Eng* 13:819-20 N 1 '15
- Rotary concentrator and classifier. *Il Eng & Min J* 100:358-9 Ag 28 '15
- Wright concentrating table. C. W. Wright. *diag Eng & Min J* 100:641-3 O 16 '15

Concentration camps

- Science in German concentration camps. A. Gradenwitz. *Il Sci Am* 113:10-11 J1 3 '15

Concentration cells

- Potassium chloride concentration cells. D. A. MacInnes and K. Parker. *diag Am Chem Soc J* 37:1445-61 Je '15
- Potential of silver against silver ion in concentrated solutions of potassium and of sodium chloride, and its relation to the activities of such solutions. G. S. Forbes and K. O. Anderegg. *Am Chem Soc J* 37:1076-85 J1 '15

Concrete

- Concrete a plague-eradicator in New Orleans. H. P. Letton. *Eng Rec* 71:325-6 Mr 13 '15
- Concrete versus stone revetment, in the Kaw valley levee work. E. B. Murray. *Il Concrete Cem* 6:203-4 Ap '15
- Effect of proportions on density and strength of gravel concrete. R. W. Crum. *Eng & Contr* 43:314-15 Ap 7 '15
- Experiences with concrete in the republic of Panama. A. I. Crary. *Il diag Eng N* 73:314-16 F 4 '15
- Field methods in concrete construction—a consideration of materials. J. Cochran. *Concrete Cem* 6:31-2 Ja '15
- Fire-resisting qualities of concrete. W. M. Kinney. *Concrete Cem* 6:40 Ja '15
- High-strength concretes produced through lowering of surface tension of mixing water. N. C. Johnson. *Il Eng Rec* 71:330-4 Mr 13 '15
- Hydrated lime in spouted concrete. G. J. Griesbauer. *Concrete Cem* 7:188 N '15
- Lime concrete extensively used in India and Burma. *Eng Rec* 71:797-8 Je 26 '15
- Mechanical disintegration of defective concrete. N. C. Johnson. *Il Eng Rec* 71:160-4 F 6 '15
- Microscope as a check on construction. N. C. Johnson. *Il Eng Rec* 71:263-5 F 27 '15
- Microscope as an aid in proportioning concrete for strength; ratio of cement to aggregate burden. N. C. Johnson. *Il Eng Rec* 71:194-7 F 13 '15
- Microscope opens new field in study of concrete. N. C. Johnson. *Il Eng Rec* 71:98-102 Ja 23 '15
- Microscope shows importance of mixing as a factor in making strong concrete. N. C. Johnson. *Eng Rec* 71:301-3 Mr 6 '15
- Oil-mixed Portland cement concrete. J. W. Page. *U S Agric Bul* 230:1-26 '15; *Abstract. Eng & Contr* 44:227-9 S 22 '15; *Excerpt. Eng Rec* 72:334-5 S 11 '15; *Excerpt (Oil-mixed concrete for damp proofing) Munic Eng* 48:376-6 Je '15; *Same. Bldg Age* 37:24 J1 '15; *Same. Am Gas Light J* 103:29 J1 12 '15; *Same. Concrete Cem* 7:30 J1 '15
- Quality of concrete controlled by tests of sand. C. M. Chapman and N. C. Johnson. *Il Eng Rec* 71:801-4 Je 26 '15
- Report on Chinese concrete. *Engineer* 118:456-J N 13 '14; *Abstract. Am Soc M E J* 37:53 Ja '15
- Selection of concrete materials. *Ry Age* 59:516 S 17 '15
- Stopping cracks in concrete. E. H. Seaman. *Concrete Cem* 7:76 Ag '15
- Tests fail to show cause of retarded set of concrete. A. W. Hartman. *Eng N* 74:847 O 28 '15
- Tests of frictional resistance of concrete on shale. E. L. Jansler. *Il diag Eng N* 74:156-8 J1 23 '15
- Use of pudding stones in mass concrete. *Concrete Cem* 5:245-6 D 14 '14
- See also* Asphalt; Bridges; Concrete; Cement; Concrete, Reinforced; Concrete construction and other headings beginning Concrete; Gunite; Pavements; Concrete; Roads; Concrete

Aggregate

- Aggregate sizes to be kept in stock. *Concrete Cem* 7:117-18, 155-6 S-O '15
- Burnt clay as concrete aggregate. W. W. Hay. *Il Eng & Contr* 43:463 My 19 '15
- Coal slack for concrete aggregate. R. B. Ketchum. *Eng N* 73:540 Mr 18 '15
- Concrete aggregate and sand in Kansas City: careful inspection necessary. *Eng N* 73:75 Ja 14 '15
- Concrete materials tested in a Jones-Talbot rattler. *Eng Rec* 71:390 Mr 27 '15

Concrete—Aggregate—Continued

- Crushed limestone aggregate for concrete pavements. A. M. Wolf. *Eng N* 74:903 N 4 '15
- Economic side of sand testing. C. M. Chapman and N. C. Johnson. *Eng Rec* 71:734-7 Je 12 '15; Same. Sibley J 30:65-70 N '15
- Effects of metal-bearing aggregate on concrete. *Concrete Cem* 6:248-9 My '15
- Field examination of concrete sand. *ding Concrete Cem* 6:303-5; 7:73-5 Je, Ag '15
- Field examination of concrete sands. C. H. Fuller. *Concrete Cem* 7:156-7 O '15
- Gravel aggregate for concrete. W. K. Hatt. *Eng Rec* 71:2-8 J1 '15
- Heating concrete aggregates. *Concrete Cem* 6:212-13 Ap '15
- Importance of proper aggregates in concrete construction. M. D. Campbell. *Eng Rec* 71:329-30 F 19 '15
- Investigation to determine the relative resistance to wear of concrete made of different aggregates. C. F. Shoop. *Eng & Contr* 44:144-7 Ag 25 '15
- Local sands and gravel as aggregates in concrete. F. M. McCullough. *Eng Soc W Pa* 31:334-37 My '15; Same cond. *Eng & Contr* 44:194-5 S 8 '15; Discussion. *Eng Soc W Pa* 31:368-79 My '15
- Magnesium limestone as concrete aggregate. W. F. Healey. *ding Concrete Cem* 5:257 D '14
- Mechanical grading of concrete sand. G. P. Dieckmann. *Concrete Cem* 7:68-9 Ag '15
- Method of making mineralogical analysis of sand. C. W. Tomlinson. *Am Inst Min E Bul* 101:947-56 My '15
- Portable gravel screening and washing plant. M. J. Campbell. *plan Ity Age* 59:345-6 Ag 20 '15
- Proportioning aggregates for Portland cement concrete. A. Meyer. *Am Gas Light J* 101:214-15-1; O 5 '14; Same. *Eng & Contr* 42:150-1 Ag 12 '14; Same cond. *Eng Rec* 70:37-8 J1 '14; Discussion. C. M. Chapman; W. M. Kinney. 70:38-9 J1 '14; Abstract. *Concrete Cem* 5:66-7 Ag '14
- Safe concrete demands knowledge of nature of sands. C. M. Chapman and N. C. Johnson. *Eng Rec* 71:771-4 Je 19 '15
- Sand for concrete and cement mortar should have jump in grading. R. H. McNelly. *Eng Rec* 72:659-62 N 27 '15
- Screening and washing plants for supplying clean and well graded aggregate. *Concrete Cem* 7:165-70 N '15
- Specifications for concrete aggregates and results of field tests. R. E. Goodwin. *Eng N* 73:247-9 F 11 '15
- State-wide survey locates road-making materials in New York. *Eng Rec* 71:488-9 Ap 17 '15
- Testing aggregates for concrete roads built by the New York highway commission. H. S. Mathmore. *Eng & Contr* 43:294-6 Mr 31 '15; Same cond. *Munic Eng* 48:131-3 F '15; Excerpt (Sand for concrete pavements). *Munic J* 38:420-1 Ap 1 '15
- Testing concrete and aggregates—laboratory and field methods. R. E. Goodwin. *Concrete Cem* 7:179-82 N '15
- Use and tests of unscreened gravel; Illinois state highway department. C. Older. *Eng N* 72:1204-5 D 17 '14
- Use of beach shells as concrete aggregate. *Concrete Cem* 7:73-3 Ag '15
- Use of blast furnace slag as an aggregate in concrete. *Concrete Cem* 5:247-9; 6:210-11 D '14, Ap '15
- Use of coke breeze as concrete aggregate. W. M. Kinney; A. M. Wolf. *Concrete Cem* 7:115-16 S '15
- Use of hand, hammer crushed brick in concrete work. C. M. Wood. *Concrete Cem* 6:160-1 Mr '15
- Use of six-inch and eight-inch aggregate points to economize in concrete work. E. O. Kantor. *Eng Rec* 71:556-8 My 1 '15; Abstract. *Eng M* 49:595 J1 '15
- Wearing tests for sand and gravel. F. L. Roman. *Good Roads N* 5:186-7 My 1 '15

See also Gravel; Sand

Coloring

Coloring a concrete wall with grout. *Concrete Cem* 7:116 S '15

Cost

Concrete cost computing chart. A. P. Hoover. *Eng N* 74:795-6 O 21 '15

Curing

- Boiler capacity for steam curing. *Concrete Cem* 7:185-6 N '15
- Influence of temperature on the strength of concrete. A. B. McDaniel. *Ill U Eng Exp Sta Bul* 81:1-24 '15; Abstracts. *Eng N* 71:892 N 4 '15; *Eng Rec* 72:600-1 N 13 '15; *Eng & Contr* 44:406-8 N 24 '15; *Am Soc M* 16 J 37:726 D '15
- Proper use of steam in curing concrete products. W. M. Kinney; J. L. Conwell. *Concrete Cem* 6:253-4 My '15
- Shrinkage of concrete and conditions of curing. F. R. McMillan. *Eng Rec* 71:489-90 Ap 17 '15

Exhibitions

Annual cement show at Chicago. *Eng Rec* 71:59-63 Mr '15

Expansion

- Expansion and contraction of concrete building measured. *Eng Rec* 71:821 My 15 '15; *Concrete Cem* 6:219 Ap '15
- Expansion in concrete sidewalks. *Munic J* 38:770-1 Ja 3 '15
- Expansion measurements on a concrete factory building. S. G. Koon. *Eng N* 73:408 F 25 '15
- See also Concrete construction—Expansion joints

Finishing

- Application of sulphate of zinc to concrete, preparatory to painting. W. M. Kinney. *Concrete Cem* 6:37-8 Ja '15
- Bonding plaster coating to interior walls and ceilings. *Concrete Cem* 6:36-7 Ja '15
- Bonds plaster to concrete and new concrete to old. *Eng Rec* 72:213 Ag 14 '15
- Cost, appearance and wearing qualities of various methods of surface finish for concrete. *Eng & Contr* 41:113-16 Ag 11 '15
- Dustless concrete floors. *Eng Rec* 70:607 D 5 '14
- New facing material in many colors. *Concrete Cem* 7:160 O '15
- Surface treatment of concrete bridges for railway and highway traffic. A. M. Wolf. *Concrete Cem* 6:169-76 Ap '15
- See also Concrete—Coloring; Concrete, Ornamental; Concrete stone

Freezing

- Concrete freezing. *Sci Am* 111:482 D 5 '14
- Concreting in freezing weather. J. Hammerley-Hennan. *Eng M* 48:743 F '15
- Frostproofing admixture for concrete. *Eng & Contr* 43:112 F 3 '15
- Frozen concrete responsible for building collapse at Saginaw, Mich. O; 14. Eckert. *Eng Rec* 71:271 F 27 '15
- Integral suits for cold weather concreting. W. M. Kinney. *Sci Am* 112:249 Mr 13 '15

Painting

- Application of sulphate of zinc to concrete, preparatory to painting. W. M. Kinney. *Concrete Cem* 6:37-8 Ja '15
- Interior wall finishes and painting of concrete. W. R. Parker. *Ity Age* 57:1137-8 D 18 '14
- See also Concrete—Coloring; Concrete—Protection

Permeability

- Impermeability of concrete. *J Ind & Eng Chem* 6:1033 D '14
- Permeability tests on gravel concrete; with discussion. M. O. Withey. *Ill W Soc E J* 19:813-58 N '14; Abstract with summary. *Am Soc M* 19 J 37:60-1 Ja '15; Summary. *Ind Eng* 14:411 O '14; Excerpts. *Concrete Cem* 6:296-7 Je '15

Concrete—Continued**Protection**

Symposium on the protection of concrete against alkali. *Concrete Cem* 6:89-90; 7:33 F, J1 '15

Use of linseed oil to protect concrete from destruction by alkali. L. A. Waterbury; R. A. Hart. *Concrete Cem* 6:90-3 F '15

See also Concrete—Painting; Concrete, Reinforced

Shrinkage

Shrinkage of concrete and conditions of curing. F. R. McMillan. *Eng Rec* 71:189-90 Ap 17 '15

Temperature

Temperature changes in mass concrete; abstracts. C. H. Paul and A. B. Mayhew. *Eng N* 74:923 N 11 '15; *Eng Rec* 72:624 N 20 '15

Temperature changes in mass concrete found to be relatively small. *Eng Rec* 71:710 Jo 5 '15

See also Concrete, Effect of temperature on

Testing

Compressive strength of Portland cement mortars and concretes; abstract. R. J. Wig, G. M. Williams and E. R. Gates. *J Fr Inst* 180:608-13 N '15

Concrete briquettes subjected to cold weather tests. *Eng Rec* 71:375 F 27 '15

Concrete cut from actual structures stronger than field-sample specimens. R. E. Goodwin. *Eng Rec* 72:298-7 S 4 '15

Concrete field testing machine. *Eng N* 72:1369-70 D 24 '15

Concrete tests; outline of work in progress under direction of committee of American society for testing materials. *Eng & Contr* 44:28 J1 '15

Developments in concrete testing. *Eng N* 73:225 F 4 '15

Effect of duration of mixing on the strength of concrete. H. H. Scofield. *Eng & Contr* 43:78-9 Ja 27 '15

Experiments made to determine the effect of varying the percentage of water in concrete. R. K. Skolton. *Eng & Contr* 42:244-6 S 9 '14

Field and laboratory tests of concrete. H. S. Matlinora. *Eng N* 73:232 F 4 '15

Field concrete better than test-sample concrete. R. E. Goodwin. *Eng N* 73:350 F 18 '15

Field testing machine used on Welland ship canal. *Eng Rec* 72:112 J1 24 '15

Gravel aggregate for concrete. W. K. Hart. *Concrete Cem* 49:2-8 J1 '15

Impermeability of concrete. *J Ind & Eng Chem* 6:1033 D '14

Influence of temperature on the strength of concrete. A. B. McDaniel. III *Eng Exp Sta Bul* 81:1-24 '15; Abstracts. *Eng N* 74:892 N 4 '15; *Eng Rec* 72:600-1 N 13 '15; *Eng & Contr* 44:405-8 N 24 '15; *Am Soc M* 19 J 37:728 D '15

Investigation to determine the relative resistance to wear of concrete made of different aggregates. C. E. Shoop. *Eng & Contr* 44:144-7 Ag 25 '15

Local sands and gravel as aggregates in concrete. F. M. McCullough. *Eng Soc W Pa* 31:334-37 My '15; Same cond. *Eng & Contr* 44:194-6 S 8 '15; Discussion. *Eng Soc W Pa* 31:388-70 My '15

Oil-mixed concrete found generally damp-proof. L. W. Page. *Eng Rec* 72:334-5 S 11 '15

Permeability tests on gravel concrete; with discussion. M. O. Withey. *W Soc* 10 J 19:813-58 N '14; Abstract with summary. *Am Soc M* 13 J 37:60-1 Ja '15; Summary. *Ind Eng* 14:411 O '14; Excerpt. *Concrete Cem* 6:296-7 Ja '15

Report of committee of the American society for testing materials on standard tests of concrete. *Eng Rec* 72:14 J1 3 '15

Results of tests to determine the distribution of loads from concrete floor slabs to steel joists; abstracts. *Eng & Contr* 44:365-7 N 10 '15; *Eng Rec* 72:578-80 N 6 '15; *Eng N* 74:938 N 11 '15

Standard practice instructions for concrete testing laboratory. R. E. Goodwin. *Eng N* 73:502-8 F 4 '15

Testing concrete and aggregates—laboratory and field methods. R. E. Goodwin. *Concrete Cem* 7:179-82 N '15

Tests to determine temperature effects on strength of briquettes. *Concrete Cem* 7:183-4 N '15

Tests to determine the effect of normal and low temperatures on the strength of cement mortar. *Eng & Contr* 43:196-7 Mr 3 '15

Why columns failed in Edison fire. W. E. Davis. *Eng Rec* 71:150 Ja 30 '15

See also Concrete, Reinforced—Testing; Floors, Concrete—Testing

Waterproofing

See Waterproofing

Concrete, Cinder

Cinder concrete floors. G. B. Waite. *Eng & Contr* 41:800-3 My 27 '14; Same cond. *Ind Eng* 14:302-4 J1 '14; Discussion. *Eng & Contr* 42:512-15 D 2 '14

Results of tests of cinder concrete floor slabs, with conclusions and recommended methods of design. H. Perrine and G. E. Strehan. *Eng & Contr* 43:379-83 Ap 28 '15

Strength and other properties of typical cinder concrete used in floor construction in New York. H. Perrine and G. E. Strehan. *Eng & Contr* 43:301 Mr 31 '15

Testing cinder concrete floors. H. Perrine. *Concrete Cem* 6:25 Ja '15

Concrete, Effect of alkalis on

Investigation of the durability of cement drain tile in alkali soils. R. J. Wig and G. M. Williams. *Eng Soc W Pa* 31:334-37 My '15; Abstract. *J Fr Inst* 179:354-8 Mr '15; Abstract. *Eng Rec* 72:220 Ag 21 '15; Excerpt. *Concrete Cem* 7:145-7 O '15

Investigation of the effects of alkali on concrete drain tile near Lake Park, Ia. C. E. Sims. *Concrete Cem* 6:278-81 Ja '15

Symposium on the protection of concrete against alkali. *Concrete Cem* 6:89-90; 7:33 F, J1 '15

Concrete, Effect of electricity on

Electrolysis develops defects in but three out of 1500 concrete poles. H. G. Throop. *Elec Ry J* 45:294 F 6 '15

Concrete, Effect of lightning on

Effect of lightning on concrete structures. *Concrete Cem* 7:187 N '15

Concrete, Effect of salts on

Integral salts for cold weather concreting. W. M. Kinney. *Sci Am* 112:249 Mr 13 '15

Concrete, Effect of sea water on

Experiences with concrete in the republic of Panama. A. P. Crary. *Ind Eng N* 73:214-16 F 4 '15

Concrete, Effect of sewage on

Effect of sewage and sewage gases on concrete. *Concrete Cem* 7:31-2 J1 '15

Concrete, Effect of temperature on

Influence of temperature on the strength of concrete. A. B. McDaniel. III *Eng Exp Sta Bul* 81:1-24 '15; Abstracts. *Eng N* 74:892 N 4 '15; *Eng Rec* 72:600-1 N 13 '15; *Eng & Contr* 44:405-8 N 24 '15; *Am Soc M* 19 J 37:728 D '15

Temperature changes in mass concrete; abstracts. C. H. Paul and A. B. Mayhew. *Eng N* 74:923 N 11 '15; *Eng Rec* 72:624 N 20 '15

Tests to determine temperature effects on strength of briquettes. *Concrete Cem* 7:183-4 N '15

Concrete, Ornamental

Making the models and molds for ornamental concrete work—using plaster and gesso. *Ind Eng N* 73:150-1 Mr '15

Ornamental concrete entrance of Selig zoo, Los Angeles. W. C. Sawyer. *Concrete Cem* 7:90 S '15

Stone facing aggregates in colors. *Concrete Cem* 7:159 O '15

Concrete, Reinforced

Building concrete silos—monolithic construction—types of commercial equipment. C. L. Gilbert. *Ind Eng N* 73:58-62, 82-3 Ag '15

Concrete and reinforced concrete in 1914. S. E. Thompson. *Eng Rec* 71:11-13 Ja 2 '15

Concrete, Reinforced—(Continued)

- Designing of reinforced concrete slabs subjected to bending and compression. A. Bull. Eng & Contr 43:454-6 My 19 '15
- Diagram facilitates estimating weight of steel in concrete. A. M. Wolf. Eng Rec 72:517-18 O 23 '15
- Draw diagrams for beams reinforced for compression. W. W. Clifford and C. H. Mungold. Eng Rec 72:472 O 16 '15
- Early reinforced concrete in England. Concrete Cem 6:85 F '15
- Electrolysis of reinforced concrete. Am Gas Light J 101:364 D 7 '14
- Fabricated unit reinforcement. II Eng & Contr 44:153-4 Ag 25 '15
- Features in the construction of new building for the Youth's companion, Boston. W. L. Conant. II diag Concrete Cem 7:133-5 O '15
- How design and methods of buying influence the cost of steel reinforcing bars. A. D. Molitor. Concrete Cem 6:184-5 Ap '15
- Large saving in steel effected by new system of flat-slab reinforcement; Youth's companion building, Boston. II plans Eng Rec 72:450-2 O 9 '15
- Light frames support reinforcement for high retaining wall. II diag Eng Rec 72:56 JI 10 '15
- Mechanics of reinforced concrete under flexure in beam and slab types. C. A. P. Turner. Boston Soc C E J 1:383-94 S '14; Discussion. 1:499-508; 2:23-47 N '14, Ja '15
- Painting reinforcing material. Concrete Cem 5:250-3 D '14
- Reinforced concrete—design and construction. Concrete Cem 6:115-17 Mr '15
- Reinforced-concrete footings economically designed. N. M. Stineman. diag Eng Rec 72:300 S 4 '15
- Reinforced-concrete footings economically designed. W. A. Hoyt. Eng Rec 72:458 () 9 '15
- Reinforced-concrete footings of special construction. diag Eng Rec 72:355-6 S 18 '15
- Reinforcing concrete columns to carry additional stories. P. R. Prusoff. II diag Eng N 74:410-11 Ag 28 '15
- Reinforcing details of Daleo building, Dayton, Ohio. diag Eng N 74:974-5 N 18 '15
- Repair of defects in reinforced concrete. Eng N 74:323 JI 29 '15
- Shop assembled reinforcement. Concrete Cem 7:161 O '15
- Special methods of reinforced concrete design; with discussion. M. J. Lorrente. diag Boston Soc C E J 2:265-82 S '15
- Steel reinforcement promises much in development. A. Breit. Concrete Cem 7:120 S '15
- Time-saving in placing reinforcing. II Concrete Cem 7:124 S '15
- Torsion strength of reinforced concrete beams. Am Soc M E J 37:49-50 Ja '15
- See also Concrete; Concrete construction

Testing

- Concrete column tests disclose effects of longitudinal and spiral reinforcement. diag Eng Rec 71:527-9 Ap 24 '15
- Designing of reinforced concrete beams; some data tending to show errors in present theory and practice. L. J. Mensch. Eng & Contr 44:108-11 Ag 11 '15
- Fifty-ton testing machine built in college shop. C. C. Myers. II diag Eng N 74:1050-1 N 25 '15
- Paints to prevent electrolysis in concrete structures. II: A. Gardner. II Jr Inst 170:313-38 Mr '15; Same. J Ind & Eng Chem 7:504-10 Je '15; Same cond. Iron Tr R 57:139-40-1 JI 15 '15; Abstracts. Eng N 73:136-7 Ja 21 '15; Eng Rec 71:465-6 Ap 10 '15; Am Soc M E J 37:297 My '15; Concrete Cem 6:810 Je '15
- Shrinkage and time effects in reinforced concrete. W. R. McMillan. II Minn U Bul 3:1-41 '15; Abstracts. Eng N 73:502-3 Mr 11 '15; Eng Rec 72:251-2 Ag 28 '15; Eng & Contr 44:306-10 O 20 '15
- Tests of circular and egg-shaped reinforced concrete sewer pipe. A. T. Goldbeck. II diag Eng & Contr 43:307-9 Ap 7 '15; Same (Reinforced-concrete sewer pipe tested for stiffness and impermeability). Eng Rec 71:711-12 Je 5 '15

- Tests of some large reinforced concrete culvert pipe. W. J. Schlick. II diag Concrete Cem 6:78-80 F '15
- Tests on the shearing resistance of reinforced concrete beams; abstract. E. Brown, II. M. MacKay and C. M. Morsson. Am Soc M E J 37:724 D '15

Concrete atomizer

- Lining two 5-ft. tunnels by use of concrete atomizer. II Eng N 74:938-9 N 11 '15

Concrete barges. See Barges, Concrete**Concrete benches. See Benches, Concrete****Concrete blocks**

- Building a sewer tunnel of special concrete blocks reinforced. diag Eng N 74:127-8 JI 15 '15
- Building code regulation of concrete block and other building units. II. Whipple. Concrete Cem 6:181-4 Ap '15
- Building concrete silos—unit construction with blocks and staves; with cost tables. C. D. Gilbert. II diag Concrete Cem 7:3-6, 37-8 JI '15
- Concrete block used in attractive and economical house construction at Moonshcutt, Ill. II plans Concrete Cem 6:16-18 Ja '15
- Concrete blocks cover sewage filter underdrains. II Eng Rec 71:333 Mr 13 '15
- Construction plant and methods employed in building a system of concrete block tunnel sewers at Edmonton, Alberta. diag Eng & Contr 43:361-3 Ap 21 '15
- Good practice in concrete block house construction. Concrete Cem 6:305-8 Ja '15
- Handling 62-ton concrete blocks at Halifax. II Eng N 74:368 Ap 19 '15
- Manufacture of hollow concrete block in the Canal Zone the administration building. II Concrete Cem 6:176-80 Ap '15
- Regulation of concrete block manufacture and use. Concrete Cem 6:208-9 Ap '15
- Toronto breakwater to curb 10-foot waves. diag Eng Rec 70:694-6 I 25 '14
- See also Concrete bricks

Concrete bricks

- Equipment of a concrete brick plant in hospital broom shop. II. E. Jenks. II plan Concrete Cem 6:103-5 Ap '15
- Preliminary work in brick manufacture by patients in Norfolk state hospital. II. N. Jenks. II Concrete Cem 6:136 7 Mr '15

Concrete bridges. See Bridges, Concrete**Concrete chimneys. See Chimneys, Concrete****Concrete coating**

- Coating disintegrated stone abutments with concrete. II Eng Rec 71:337-8 Mr 13 '15
- Concrete incrustment of steel bridge girders. diag Eng N 73:1082 Jo 3 '15
- Protection of metal structures. F. H. Fay. II diag Eng Soc W 1:31:132-66 Mr '15

Concrete columns. See Columns, Concrete**Concrete construction**

- American concrete institute: convention. Eng N 73:360-1 F 18 '15
- American concrete institute's tests on concrete columns. Eng N 73:524-7 Mr 18 '15
- Baltimore filters abound in useful hints on concrete construction and design. J. W. Armstrong. II plans Eng Rec 71:583-6 My 8 '15
- Building concrete drops on irrigation canals in western Canada. H. H. Stockton. II Concrete Cem 6:226-8 My '15
- Building the Tough-Cakes mill. J. A. Baker. II diag Eng & Min J 100:869-74 N 27 '15
- Concrete: a medium of aesthetic expression. I. K. Pond. Concrete Cem 6:119-20 Mr '15
- Concrete and reinforced concrete in 1914. S. W. Thompson. Eng Rec 71:11-13 Ja 2 '15
- Concrete buildings in Mexico. Bldg Age 37:29-30 F '15
- Concrete construction on the New York state barge canal. C. C. Mills. II diag Concrete Cem 6:205-7 Ap '15
- Concrete mantel made with pre-cast units. II diag Concrete Cem 6:138 Mr '15
- Concrete mixing and placing. Ford building, Buffalo. II plan Eng N 74:1083-4 I 3 '15
- Concrete rings, superimposed, sunk to form San Antonio pump pit. W. W. Hay. II diag Eng Rec 71:741-2 Jo 12 '15

Concrete construction—Continued

- Concrete-unit building construction at Cedars Rapids. *II* diag *Eng* N 73:875-7 Ap 8 '15
- Concrete units for crib construction. M. D. Campbell. *II* *Ity* Age 58:476-7 Mr 12 '15
- Concrete warehouse on Brooklyn waterfront rapidly completed. T. A. Smith. *II* *Eng* Rec 71:298-9 Mr 6 '15
- Concrete work on the Arizona division of the Santa Fe. *II* diag *Ry* Age 58:849-53 Ap 16 '15
- Concrete work withstands severe tests in the Erie flood. L. R. Ferguson. *II* *Concrete Cem* 7:148-50 O '15
- Constructing the Austin Nichols building in New York. *II* diag *Eng* & Contr 43:296-9 Mr 31 '15
- Construction details of bridge across Portland harbor. *II* diag *Eng* N 74:865-8 N 4 '15
- Construction management. S. J. Thompson and W. O. Lichtner. *II* diag *W Soc* 16 J 20: 109-29 F '15; Same cond. *Eng* & Contr 43: 428-32 My 12 '15; Discussion. *W Soc* 16 J 20: 120-51 F '15
- Construction of sanitary manure in dairy barn at Troy, Pa. *II* diag *Concrete Cem* 6: 104-6 F '15
- Design and construction of Massachusetts institute of technology buildings. S. J. Thompson. *II* diag *plan Concrete Cem* 7:14-19 J '15; Same. *Eng* & Contr 43:513-18 Je 9 '15; Same cond. *Eng* Rec 71:748-50 Je 12 '15
- Design and construction of Midland warehouse, Chicago. *II* diag *plans Eng* & Contr 44:182-4 S 8 '15
- Design and construction of the Chicago Hebrew institute. *II* plans *Eng* & Contr 43:558-63 Je 23 '15
- Design and construction of the Gantner-Mattern co. knitting mill at San Francisco. B. F. Cykler. *II* diag *Concrete Cem* 6:273-7 Jo '15
- Design features of reinforced concrete swimming pool at Riverview park, Chicago. plan *Eng* & Contr 44:357 N 3 '15
- Details of a standard portable carpenter shop on construction work. *II* plans *Concrete Cem* 6:186 Ap '15
- Edge protector for concrete structures. *Munic Eng* 48:274-5 Jo '15
- Erecting small concrete buildings. P. H. Wilson. *II* diag *Bldg* Age 37:37-8 Jo '15
- Expansion and construction of concrete building measured. *II* *Eng* Rec 71:621 My 15 '15; *Concrete Cem* 6:219 Ap '15
- Expansion measurements on a concrete factory building. M. C. Koon. *Eng* N 73:408 F 26 '15
- Features in the construction of new building for the Youth's companion, Boston. W. B. Conant. *II* diag *Concrete Cem* 7:133-5 O '15
- Field methods in concrete construction. J. Cochran. *Concrete Cem* 6:231-2, 81-3, 142-4, 187-9, 285-9 J ; 7:23-6, 107-10, 175-8 Ja-Apr, Ja-Jl, N, N '15
- Field problems in concrete construction. *Concrete Cem* 6:121-2 Mr '15
- First reinforced concrete arch in America. J. W. Pearl. diag *Concrete Cem* 7:76-6 Ag '15
- Five examples of cantilevered auditorium balconies. diag *Eng* Rec 73:234-5 Ag 21 '15
- Foundations for transmission line, and tower erection, Toronto power company. R. C. Connery. *II* diag *Am Inst* R 10 Pro 34:1389-77 J '15
- Foundations for transmission line towers and tower erection. P. M. Downing. *plan Am Inst* R 10 Pro 34:1193-7 Jo '15; Abstract. *Ilec* W 66:10 J '15
- Foundations for transmission line towers and tower erection; concreting foundations. J. A. Walls. *plan Am Inst* R 10 Pro 34:1167-78 Jo '15; Abstract. *Ilec* W 66:8-9 J '15
- Galveston's sea-wall checks hurricane's devastation. E. B. Van de Greyn. *II* diag *Eng* Rec 73:271-5 Ag 28 '15
- Good practice in concrete block house construction. *Concrete Cem* 6:305-8 Jo '15
- Hoist for reinforcing-steel. H. DaCamara. diag *Eng* N 73:395 F 25 '15
- Hydrostatic catenary flume on a concrete aqueduct. R. B. Muckleston. *II* diag *map Eng* N 74:58-63 J '15
- Large reinforced-concrete cribs used for Welland ship canal entrance. R. P. Johnson. *II* diag *Eng* Rec 71:458-60 Ap 10 '15
- Large saving in steel effected by new system of flat-slab reinforcement; Youth's companion building, Boston. *II* plans *Eng* Rec 72:450-2 O 9 '15
- Longest municipal pier in United States is nearing completion at Chicago. *II* diag *Eng* Rec 71:778-80 Jo 19 '15
- Manufacture of hollow concrete block in the Canal Zone—the administration building. *II* *Concrete Cem* 6:176-80 Ap '15
- Mapping terraces at the Zoo. R. N. Stroyer. *II* diag *Engineer* 119:156-7 F 12 '15
- Mechanics of reinforced concrete under flexure in beam and slab types. C. A. P. Turner. *Boston Soc* C 10 J 1:383-94 S '14; Discussion. 1:499-508; 2:23-47 N '14, Ja '15
- Method and cost of constructing reinforced concrete drops, Canadian Pacific Ry., irrigation projects. R. S. Stockton. *II* *Eng* & Contr 43:345-6 Ap 14 '15
- Methods and costs in constructing factory building at Houston, Texas. L. A. Hoynck. *II* diag *Concrete Cem* 6:59-63 F '15
- Methods and costs in constructing, 42-in. and 48-in. monolithic concrete sewer. R. W. Robinson. *II* diag *Concrete Cem* 7:93-6 S '15
- Methods and costs of constructing the Bay st. underpass at Macon, Ga. C. H. Fuller. *II* diag *Concrete Cem* 6:76-8 F '15
- Mixture of mortar for laying up block walls. *Concrete Cem* 6:30 Ja '15
- National league baseball park of reinforced concrete at Boston. W. B. Conant. *II* diag *Concrete Cem* 7:53-5 Ag '15
- New concrete construction processes and appliances. *Eng* & Contr 43:113 F 10 '15
- New deep water pier at Halifax, Nova Scotia. A. F. Byar. *II* *Concrete Cem* 7:7-13 J '15; Same cond. *Eng* N 73:1204-10 Ja 24 '15
- New graving dock at South Shields. *II* diag *plan Engineer* 120:154-6, 158 Ag 13 '15
- New York rapid transit railway extensions. R. Lavis. *II* diag *Eng* N 73:1294-8 D 31 '14
- Palmer memorial stadium at Princeton university. *II* diag *plan Eng* N 72:1184-7 D 10 '14
- Portable buildings of monolithic reinforced concrete. *II* *Eng* N 72:1256 D 24 '14
- Portland plant. W. B. Conant. *II* diag *Munic J* 39:499-502 H 30 '15
- Preliminary repair work on the Edison concrete buildings. *II* diag *Eng* N 73:89-91 Ja 14 '15
- Reinforced concrete as an emergency repair for an iron chimney. *II* diag *Eng* & Contr 43: 100-1 F 3 '15
- Reinforced-concrete cap of Perry memorial column. H. C. Esler. diag *Eng* N 74:154-5 J '15
- Reinforced concrete—design and construction. *Concrete Cem* 6:115-17 Mr '15
- Reinforced concrete factory buildings; abstracts. F. W. Dean. *Am Soc* M 10 J 37:9 Ja '15; *Iron Tr* R 56:518-4 Mr 11 '15; Discussion. *Am Soc* M 10 J 37:9-11 Ja '15
- Reinforced-concrete floating caissons for the Welland ship canal. *II* diag *Eng* N 73:1123-4 Jo 10 '15
- Reinforced-concrete frame of hotel Traymore erected at rate of a floor a week. *II* plans *Eng* Rec 73:50-1 J '15
- Repair of concrete buildings at Edison plant sets precedents in construction work. *II* diag *Eng* Rec 71:508-6 Ap 17 '15
- Restoring concrete buildings at Edison plant. diag *Eng* Rec 71:40 Ja 9 '15
- San Diego's municipal stadium. F. A. Rhodes. *II* plan *Eng* N 74:877-80 M 23 '15
- Sheepshead Bay two-mile speedway scientifically designed for high velocities. *II* diag *Eng* Rec 71:739-40 Jo 12 '15
- Steel concreting tower with slotted boltholes designed for rapid erection. diag *Concrete Cem* 6:269-70 D '14
- Storage cellar built of concrete. P. H. Wilson. *II* *Bldg* Age 37:64 Mr '15
- Structural features of a reinforced concrete combined storage warehouse and office building in Seattle. diag *Eng* & Contr 43: 446-51 N 11 '14

Concrete construction—Continued

System of unit construction. *Il* Concrete Cem 7:160-1 O '15

Tall reinforced concrete coke house in Rotterdam, Holland. *Il* Eng & Contr 44:229-30 S 23 '15

Temperature measurements in concrete buildings. Concrete Cem 6:155-7 Mr '15

200,000 yards of concrete placed for \$800,000 in Lake Washington canal lock. *Il* diag plan map Eng Rec 72:141-3 J1 31 '15

U-bolt splice in heavy reinforcing bars. T: C. Atwood. *diags* Eng N 73:218 P 4 '15

Unit construction of a Portland cement mill building. D. C. Findlay. *Il* *diags* Concrete Cem 7:79-81 Ag '15

Unit construction reduces quantity of concrete. J. G. Conzelmann. *Il* Eng Rec 72:635-6 N 20 '15

Uses for concrete construction by cotton manufacturers. L. C. Wason. Textile World 49:288-91 My '15

See also Bridges, Concrete; Chimneys, Concrete; Columns, Concrete; Concrete, Reinforced; Concrete blocks; Concrete finishing; Concrete houses; Concrete lining; Concrete placing; Concrete slabs; Concrete stone; Dams, Concrete; Fireproof construction; Floors, Concrete; Lighthouses, Concrete; Poles, Concrete; Pontons, Concrete; Reservoirs, Concrete; Retaining walls, Concrete; Roofs, Concrete; Sewers, Concrete; Silos, Concrete; Stairways, Concrete; Standpipes, Concrete; Tanks, Concrete; Trestles, Concrete; Walls, Concrete; Water towers, Concrete

Cost

Building concrete silos—unit construction with blocks and staves; with cast tables. C. L. Gilbert. *Il* *diags* Concrete Cem 7:3-6, 37-8 J1 '15

Cost of mill construction. H. T. Curran. Eng & Min J 100:345-7 Ag 28 '15; Same. Eng & Contr 44:266-8 O 6 '15

Material cost of concrete slabs. Concrete Cem 7:182 N '15

Design

Chart for designing reinforced concrete beams. H. R. Leffler. Eng & Contr 42:135-8 Ag 5 '14

Chicago municipal pier. *Il* *diags* Eng N 74:193-7 J1 29 '15

Design and construction features of the Palmer memorial stadium, Princeton, N. J. *Il* *diags* plan Eng & Contr 43:473-5 My 26 '15

Design and construction of a unit-cast mill building in Victoria, B. C. *Il* *diag* plans Eng & Contr 44:185-8 S 8 '15

Design methods in concrete construction. J. Cochran. Concrete Cem 6:133-4, 83-5, 145-8, 190-2, 282-4 Ja-Apr, Ju '15

Design methods in concrete construction—arches with fixed ends. A. M. Wolf. *diags* Concrete Cem 7:137-44 O '15

Design methods in concrete construction—retaining walls. H. M. Cotten. *diags* Concrete Cem 7:65-7 Ag '15

Design of rectangular concrete beams. H. Harding. Am Soc M E J 37:520-31 S '15

Design of reinforced concrete buildings. A. C. Jamn, A. M. Wolf; L. L. Viterbo. Concrete Cem 7:70-2 Ag '15

Design of reinforced concrete buildings. J. A. Currey; E. Godfrey. Concrete Cem 6:249-50 D '14

Design of reinforced concrete T-beams and rectangular beams with steel in compression. M. J. Lorcote. Eng & Contr 43:182-4 F 24 '15

Designing of reinforced concrete beams; some data tending to show errors in present theory and practice. L. J. Mensch. Eng & Contr 44:108-11 Ag 11 '15

Details of the reinforced concrete building of the Ford motor co., Chicago, Ill. *Il* *diags* Eng & Contr 42:220-3 S 2 '14

Economy in the design of reinforced concrete columns. P. J. Waldram. Engineer 120:28-30, 82-4 J1 9-16 '15

Expansion joints over beams and girders. J. T. Simpson; A. M. Wolf. Concrete Cem 6:93 F '15

Graphical method for designing simple reinforced concrete beams and data for designing simple, double-reinforced and T-beams. H. R. Leffler. Eng & Contr 43:239-43 Mr 17 '15

Largest fireproof resort hotel in the world completed at Atlantic City. *Il* *diags* Eng Rec 72:11-13 J1 3 '15

Maximum stresses in tension reinforcement. M. J. Lorcote. Eng & Contr 42:366 O 14 '14

National league ball park at Boston. *Il* *diags* Eng N 74:374-7 Ag 19 '15

New ruling on reinforced concrete flat slab construction by building department of Chicago. Eng & Contr 42:330 O 7 '14

New steel and concrete structure to furnish nearly sixteen acres of floor space; Birmingham warehouse in Cleveland. *diags* plan Eng Rec 72:356-7 S 18 '15

New Traymore hotel at Atlantic City. *Il* *diags* Eng N 74:18-23 J1 1 '15

Reinforced concrete and brick roundhouse of the Buffalo, Rochester & Pittsburgh Ry., at Imbols, Pa. *diags* plans Eng & Contr 44:66-9 J1 28 '15

Reinforced-concrete footings economically designed. N. M. Stinemman. *diag* Eng Rec 72:300 S 4 '15

Reinforced-concrete footings of special construction. *diags* Eng Rec 72:355-6 S 18 '15

Reinforced-concrete roundhouse at Du Bois. *Il* *diags* Eng Rec 71:167-9 P 6 '15

Shipping piers in Southwark district of Philadelphia. *Il* *diags* plans Eng N 74:121-1 Ag 26 '15

Simple method of determining the stresses in concrete arches due to temperature and rib shortening. H. R. Thayer. Eng & Contr 44:173-4 S 1 '15

Special details in reinforced concrete and steel building construction. L. W. Bruck. Eng & Contr 44:143-4 Ag 25 '15

Special methods of reinforced concrete design; with discussion. M. J. Lorcote. *diags* Boston Soc C E J 2:265-82 S '15

Structural features of the Field museum of natural history, Chicago. *diags* plan Eng & Contr 44:225-7 S 22 '15

Suspended beam forms—their advantages and disadvantages. G. Mamant. *diag* Eng Rec 71:120 Ja 25 '15

Unit-built concrete umbrella sheds. Los Angeles, California. R. R. Newman. *Il* *diags* Concrete Cem 7:20-2 J1 '15

Wall beam details in reinforced concrete building. Concrete Cem 6:88 P '15

See also Floors, Concrete

Expansion Joints

Expansion joints in concrete structures. *diags* Ry R 57:628-30 N 13 '15; Abstract. Eng Rec 72:632 O 30 '15

Expansion joints over beams and girders. J. T. Simpson; A. M. Wolf. Concrete Cem 6:93 P '15

Perishable dividing plate for expansion joints in concrete. Munic Eng 48:324 My '15

Failures

Bridge sidewalk failure due to paving expansion. Dallas, Texas. *Il* *diag* Eng N 72:92 Ja 14 '15

Contractors to replace \$20,000 worth of concrete bridge work. J. H. Ames. *Il* Concrete Cem 7:104-6 S '15

Control of reinforced concrete construction. W. K. Hatt. Concrete Cem 6:297-8 Jo '15

Failure of 17-year-old concrete roof slab. Eng N 74:92-3 J1 8 '15

Failure of the Hippodrome arcade, Youngstown, Ohio. *diags* plan Eng N 72:1326-30 D 31 '14

Failure of the theater and Arcade building, Youngstown, Ohio. J. Godfrey. *Il* Eng & Contr 42:1515-16 D 2 '14

Frozen concrete responsible for building collapse at Saginaw, Mich. O: M. Eckert. *Il* Eng Rec 71:271 F 27 '15

Fire resistance

Behavior of reinforced concrete in fires. *Il* Eng Rec 70:685-6 D 12 '14

Concrete as fire-resisting material. T: A. Edlison. Eng Rec 71:598 My 8 '15

Concrete construction—Fire resistance—Cont.

- Concrete construction and the Edison fire. L. C. Wason. *Textile World* 48:537-40 F '15
- Concrete was melted in Edison fire. *Il Eng N* 73:362-3 F 18 '15
- Disastrous fire at Edison factory. *Il plan Eng Rec* 70:660-2 D 19 '14
- Fire protection of structural members. S. Broadbent. *Concrete Cem* 6:124 Mr '15
- Fire-resisting qualities of concrete. W. M. Kinney. *Concrete Cem* 6:40 Ja '15
- Hot chemicals and concrete formed slag at Edison fire. *Eng Rec* 71:184 F 6 '15
- Preliminary report of committee on Edison fire. *diag plan Eng & Contr* 43:193-6 Mr 3 '15
- Preliminary report of committee on Edison fire; findings. *Eng & Contr* 43:145 F 17 '15; Same. *Concrete Cem* 6:120-1 Mr '15
- Underwriters and fire protection association report on Edison fire. *Il diag plan Eng Rec* 71:239-42 F 20 '15

Forms

- Concrete form appliances that will interest contractors. *Il Eng Rec* 72:32 JI 3 '15
- Design, construction and detailed costs of the sliding forms for a reinforced concrete grain storage house. W. W. Hay. *Eng & Contr* 44:304-5 O 20 '15
- Field methods in concrete construction—beam and slab forms. J. Cochran. *diag Concrete Cem* 6:285-84 Ja '15
- Field methods in concrete construction—cleaning and lubrication of forms and centering. J. Cochran. *Concrete Cem* 7:176-8 N '15
- Field methods in concrete construction—column forms; design and construction. J. Cochran. *Concrete Cem* 6:187-9 Ap '15
- Field methods in concrete construction—design and construction of forms in general. J. Cochran. *Concrete Cem* 6:142-4 Mr '15
- Field methods in concrete construction—wall forms; design and construction. J. Cochran. *Concrete Cem* 7:23-6 JI '15
- But system lowers cost of concrete forms and strengthens structure. *Il Eng Rec* 72:679 N 27 '15
- New system of adjustable concrete floor forms. *Il diag Concrete Cem* 6:269-70 My '15
- Saving time in setting forms. *Il Concrete Cem* 7:103 S '15
- Special features in forms for concrete buildings. *Il diag Eng N* 73:730 Ap 15 '15
- Standard designs for concrete form work; drawings. *Concrete Cem* 7:57 Ag '15
- Unit steel forms for concrete walls and floors. *Il Concrete Cem* 7:126 M '15
- Wholen culvert form. *Il Munic J* 39:376-7 M 2 '15

Concrete construction in mines

- Concrete in mine work. R. Reynolds. *Colliery* 35:407-8 Mr '15
- Concrete underground ore pocket at Copper Queen. K. M. Heidelberg. *diag Eng & Min J* 100:559-61 O 2 '15
- Reinforced concrete props and beams in mines. S. M. Dixon. *Colliery* 35:431-2 Mr '15
- Use of concrete underground; methods in use in some shafts in the copper country. H. T. Mercer. *diag Colliery* 35:441-26 Mr '15

Concrete construction in winter

- Casting concrete pipe out of doors in winter at Hamilton, Ontario. A. K. Macallum. *Il Concrete Cem* 7:174 N '15
- Cold weather construction methods used in erecting Hotel Traymore. D. L. Kneidler. *Il diag Concrete Cem* 7:172-4 N '15
- Concrete construction in the winter: heating the water, sand and gravel by steam and the enclosed work by stoves, salamanders, etc. H. H. Rice. *Il diag Ag* 37:34-6 F '15
- Concrete in cold weather. L. C. Wason. *Concrete Cem* 6:94 F '15
- Concrete road building in cold weather requires precautions. *Eng Rec* 72:641-2 N 20 '15

Concreting in freezing weather. J. Hammersley-Heenan. Eng M 48:743 F '15

- Cost of mill construction. H. T. Curran. *Eng & Min J* 100:346-7 Ag 28 '15; Same. *Eng & Contr* 44:266-8 O 6 '15

- Cost of winter construction. H. C. Campbell. *Eng & Min J* 100:565 O 2 '15
- Cost of winter construction. H. T. Curran. *Eng & Min J* 100:889-90 N 27 '15
- Effect of frost upon concrete. J. Hammersley-Heenan. *Colliery* 36:18 Ag '15
- Features of a large winter concreting job. *Il plan Eng N* 73:538-40 Mr 18 '15
- Method of constructing concrete road in freezing weather. H. C. Campbell. *Il Eng & Contr* 44:348 N 3 '15
- New coal dock for the Cincinnati, Hamilton & Dayton at Toledo. *Il plan Ry Age* 59:273-4 Ag 13 '15; Same. *Ry R* 57:236-9 Ag 21 '15; Same cond. *Eng Rec* 72:163-4 Ag 7 '15
- Paper-covered frames for cold weather concreting. A. A. Lano. *Il Eng Rec* 71:59 Ja 9 '15
- Precautions necessary to assure successful concrete work in winter. *Concrete Cem* 7:171-2 N '15
- Report on national frost-proofing. *Concrete Cem* 7:190-1 N '15
- Tests to determine temperature effects on strength of briquettes. *Concrete Cem* 7:183-4 N '15
- Toledo coal dock built in record time. *Il plan Eng N* 74:520-2 S 9 '15
- Warning against cold weather concreting. H. A. Randa. *Eng N* 73:548-9 Mr 18 '15

See also Concrete—Freezing

Concrete curbs. See Curbs, Concrete

Concrete dams. See Dams, Concrete

Concrete drain tile. See Drain tile

Concrete failures. See Concrete construction—Failures

Concrete floors. See Floors, Concrete

Concrete handling

- Aggregate mechanically handled from pit to road. *Il Eng Rec* 72:133-4 JI 31 '15
- Concrete plant used on the Austin-Nichols building at Brooklyn, N. Y. T. A. Smith. *Il plans Concrete Cem* 6:261-3 My '15
- Concrete warehouse on Brooklyn waterfront rapidly completed despite serious delays. T. A. Smith. *Il Eng Rec* 71:298-9 Mr 6 '15
- Inexpensive bucket and hoist for concrete handling. M. H. Owen. *Il diag Concrete Cem* 6:257-8 My '15
- Large quick-dumping concrete car used at 46th street pier. *Il Eng Rec* 72:395 S 25 '15
- Telpher charges concrete mixer direct from cars. *diag Eng Rec* 71:408-9 Mr 27 '15
- Tilting hopper saves labor on concrete job. (T. W. Davidson. *Il Eng Rec* 72:459-60 O 9 '15
- Wet concrete hauled from central plant on river. *Il Eng Rec* 71:469-70 Ap 10 '15

Concrete houses

- Concrete block house, with double wall, which cost less than \$2,500. *Il plans Concrete Cem* 6:44-5 Ja '15
- Concrete block used in attractive and economical house construction at Mooseheart, Ill. *Il plans Concrete Cem* 6:16-18 Ja '15
- Concrete house with double walls. *Il plans diag Ag* 37:63-6 F '15
- Construction of small concrete houses at San Juan. P. R. K. K. Burton. *Il diag Concrete Cem* 7:100-3 S '15
- Cost and construction details of double wall house on Long Island. *Il Concrete Cem* 6:48-9 Ja '15
- Country house built of concrete. *Il diag plans diag Ag* 37:42-4 F '15
- Double-wall house construction with pre-cast wall, floor and roof units. *Il Concrete Cem* 6:20-8 Ja '15
- Engineer's concrete block cottage—built in Riverdale, Cal., for \$3,000. H. Newman. *Il plans Concrete Cem* 6:20-1 Ja '15
- Houses with concrete walls and permanent interior form of hollow tile. C. E. Knapp. *Il diag plans Concrete Cem* 6:22-3 Ja '15
- Houses at Forest Hills Gardens—pre-cast hollow concrete floor, wall and roof units and exposed aggregates. P. Squires. *Il Concrete Cem* 6:2-8, 63-4 Ja '15
- Prize design in English farm cottage competition. *Il Concrete Cem* 6:218-19 Ap '15
- Six-room house, double concrete walls, costs complete, \$3,500. *Il plans Concrete Cem* 6:47-8 Ja '15

Concrete houses—Continued

Steel and concrete mine houses, diag plan Eng & Min J 99:987-8 Jo 5 '15

Two-story house with walls and floors of concrete, built for less than \$3,000. II Concrete Cem 6:50-2 Ja '15

Worked out details in concrete house construction. A. M. Smith, diag Concrete Cem 6:17-18 Ja '15

See also Concrete—Painting; Concrete construction; Floors, Concrete

Concrete Institute, American. See American concrete institute

Concrete lining

Building invert of Milwaukee intake tunnel.

L. G. Warren, diag Eng N 74:802-3 N 4 '15

City tunnel of the Catskill aqueduct. W. 16.

Spurr, Eng N 73:194-8 F 4 '15

Concrete as a furnace lining. J. C. Hawkins.

Power 41:169-70 F 2 '15

Concrete-lined oil storage reservoirs in California; construction methods and cost data; abstract. R. D. Cole, diag Eng & Contr 44:408-9 N 24 '15

Concrete lining as applied to irrigation canals.

R. Fortler, 17 pls U S Agric Bul 126:1-86 '14;

Excerpt (Design and structural details). Eng & Contr 43:71-4 Ja 27 '15; Excerpt

(Methods and costs of constructing). Eng & Contr 43:130-6 F 10 '15

Concrete lining for irrigation canals at Burbank, Wash.; abstracts. R. M. Chandler.

Eng N 73:772-3 Ap 22 '15; Eng & Contr 43:489-90 Je 2 '15

Concrete lining for steel bunkers. II Power 40:813 D 8 '14

Concrete lining improves sewage-laden creek.

J. D. Justin, II Eng Rec 73:161-2 Ji 24 '15

Construction of the Eden Park reservoir, Cincinnati, K. C. Crahn, II Concrete Cem 6:134-5 Mr '15

Driving and lining carried on simultaneously at Shageluk tunnel, Alaskan timbering. R. W. Iac, diag Eng Rec 72:44-6 Ji 10 '15

Ferro-concrete shaft linings. M. Gillenau, diag Colliery 35:500-11 Je '15

Harlem river four-track subway tunnel.

C. Hoff, II diag map Eng Soc W Pa 31:517-37; Discussion, 31:571-83 D '15

Lining a double track railway tunnel under traffic. R. Moucham, II diag Ry Age 59:106-8 N 19 '15; Same, Ry 16 67:645-8 N 20 '15;

Same, Eng & Contr 44:396-8 N 17 '15

Lining a railway tunnel by compressed air.

II Eng N 74:1033 N 25 '15

Lining the St. Louis water tunnel with concrete by means of compressed air. E. C. Davis, II Eng N 73:164-6 Ja 28 '15; Same, Amn Eng Soc J 53:287-93 D '14

Lining tunnels on the new Lawlontown-Great Falls line of the St. Paul, diag Ry Age 58:878-9 My '15

Modern methods in railway tunnel construction. C. S. Churchill, diag Ry 16 57:547-55 O 30 '15

Modifications in shaft design influenced by concrete as a lining material. Eng & Contr 43:370 Ap 28 '15

Placing a concrete lining in the Sandy Ridge tunnel. II plan Ry Age 59:533-5 N 17 '15;

Same, Ry 16 67:327-32 N 11 '15; Same (Self-propelled compressed-air mixing plant) Eng Rec 73:353-5 N 18 '15

Placing the concrete lining for reservoirs.

Eng N 74:267-8 Ag 5 '15

Plaster lining irrigation canals and laterals, Okanogan project, U. S. reclamation service.

C. Casteel, Eng & Contr 43:441-3 My 19 '15

Records of operation in handling concrete with compressed air. II diag Concrete Cem 5:280-3 D '14

Records of seepage losses in concrete lined canals. H. D. Newell, Eng & Contr 44:22 Ji 7 '15

Tour of West discloses best practice in irrigation and power canal design. C. A. Farwell, Eng Rec 71:628-4 My 15 '15

Tunnel lining by compressed air. II Ry Age 57:1143-4 D 18 '14

Concrete mixers

Batch mixer proves economical. Eng N 74:554 N 16 '15

Batch timing and measuring device on a concrete mixer. II Eng N 73:1278 D 24 '14

Blystone mixer for concrete, plaster and mortar.

II Bldg Age 37:81 F '15

Concrete mixer and atomizer. II Eng & Contr 42:509-10 N 25 '14

Devices for insuring correct mix on high-class work. II diag Eng Rec 72:177-8 Ag 7 '15

Grouting machine; a Marsh-Capron mixer for concrete grouting. II Munic J 39:160 Ji 29 '15

Mixer plant on flat car propels itself along the job. F. E. Cantwell, II Eng Rec 72:148 Ji 31 '15

New 3 1-2-cu. ft. concrete mixer. II Concrete Cem 5:271 D '14

Portable concrete mixer with elevator tower.

II Eng N 73:826 Ap 29 '15

Proper regulation of air prevents clogging of pneumatic mixers. H. A. Leeuw, diag Eng Rec 73:459 O 9 '15

Rating concrete mixers. Elec Ry J 46:838 O 16 '15

Recent developments in concrete mixers. II Eng N 73:716-18 Ap 15 '15

Self-propelled compressed-air mixing plant lines Sandy Ridge tunnel under traffic. II diag Eng Rec 72:353-5 N 18 '15

Small batch mixer with special loading feature. II Concrete Cem 6:107 F '15

Small size concrete mixer. II Eng & Contr 44:214-15 N 15 '15

Smith-Chilenco low charging concrete mixers.

II Good Roads N 10:271 N 6 '15; Ry Age 59:746 O 22 '15

Concrete mixing

Aggregate mechanically handled from pit to road. II Eng Rec 72:133-4 Ji 31 '15

Concrete cranes used successfully in dock construction at Victoria. II diag plans Eng Rec 72:166-7 Ag 7 '15

Conveying concrete mixer. II diag Concrete Cem 7:19-50 Ji '15

Dry mixing of concrete in a batch mixer before adding water. Concrete Cem 6:157 Mr '15

Effect of duration of mixing on the strength of concrete. H. I. Scofield, Eng & Contr 43:78-9 Ja 27 '15

English specifications for a bituminous concrete mixing plant and details of the acceptance test. W. H. Graves, Eng & Contr 42:326-6 N 30 '14

Eye is best means of controlling consistency of mix. Eng Rec 72:169 Ag 7 '15

Field methods in concrete construction. J. Cochran, Concrete Cem 5:31-3 F '15

Floating mixing plant with tower for concreting on river work. II Eng Rec 71:589 Ja 18 '15

Heating concrete aggregates. Concrete Cem 6:212-13 Ap '15

Methods and costs of concreting for modern pavement. S. Gausmann, Elec Ry J 45:718-19 Ap 10 '15; Excerpt (Track concreting costs vary with mixing methods). Eng Rec 71:451 Ap 10 '15

Microscope as a check on construction. N. C. Johnson, II Eng Rec 71:265-6 F 27 '15

Microscope shows importance of mixing as a factor in making strong concrete. N. C. Johnson, II Eng Rec 71:301-3 Mr 6 '15

Mixer car placed in center of train saves wheeling. II Eng Rec 72:441 N 20 '15

Mixing, curing and placing concrete with high pressure steam. H. P. Brown, II Eng & Contr 43:199-200 Mr 3 '15; Abstract. Eng Rec 71:252 F 20 '15

New records in mixing and placing concrete. Concrete Cem 7:87 Ag '15

Proper method of mixing concrete. Bldg Age 37:30 My '15

Proportioning aggregates for Portland cement concrete. A. Moyer, Am Gas Light J 101:214-5+ O 5 '14; Same, Eng & Contr 42:150-1 Ag 13 '14; Same cond. Eng Rec 70:37-8 Ji 11 '14;

Discussion. C. M. Chapman; W. M. Kinney. 70:28-9 Ji 11 '14; Abstract. Concrete Cem 5:66-7 Ag '14

Railroad mixing plant has bins on mixer car fed by crane. M. E. Ehrlich, II Eng Rec 72:521-2 O 23 '15

What amount of water should be used in concrete mixtures. H. C. Campbell, Sci Am 118:81 Ji 24 '15

Concrete mixing—Continued

Will mixing concrete too wet cause its eventual failure? Concrete Cem 6:254-5 My '15
Yardage record at Kensico dam due, in part, to operation of mixers. G. T. Seabury. Eng Rec 71:199 F 13 '15

See also Concrete mixers

Concrete piling

Concrete anchor piles for steel sheeting. diags Eng N 72:1220-1 D 17 '14
Concrete culvert pipe and concrete piles. Ry Age 59:762-3 O 22 '15
Concrete pile and cylinder foundations at Charleston. II diag Eng N 74:926-9 N 11 '15
Concrete pile holder foundation at Lynn. R. E. Drake. II diags Am Gas Light 102:163-6 Mr 15 '15; Discussion. 102:235-7 Ap 12 '15
Concrete trestles on Tennessee division second track, Illinois Central R. R. M. Johnson. II Ry R 56:715-18 My 29 '15
Data on the design and cost of concrete piles used on railroad work. diags Eng & Contr 43:452-3 My 19 '15
Explosives for driving concrete piles. F. T. James. Eng N 74:558-9 S 16 '15
New deep water pier at Halifax, Nova Scotia. A. F. Dyer. II Concrete Cem 7:7-13 J1 '15; Same cond. Eng N 73:1204-10 Jo 24 '15
Unit-construction system applied to a three-mile concrete viaduct to reduce the cost. II diags Eng Rec 72:249-50 Ag 28 '15

Concrete pipe association, American. See American concrete pipe association

Concrete pipes. See Pipes, Concrete

Concrete placing

Beunfield gravity system for distributing concrete. II diag Concrete Cem 7:48-9 J1 '15
Chutes for depositing concrete by gravity. H. C. McClure. Concrete Cem 5:249 D '14
Concrete chuting plant with braced boom and chute. E. L. Jones. II Eng N 73:193-4 F 4 '15
Concrete dome for the new Technology buildings, Cambridge, Mass. II Eng N 74:386-6 Ag 26 '15
Concrete hoist of simple construction. II diags Concrete Cem 7:127-8 S '15
Concreting methods and records, Elephant Butte dam, M. H. Baldwin. diags Eng N 74:696-8 O 7 '15
Concreting plant with a braced double tower. II plan Eng N 73:442-3 Mr 4 '15
Concreting the Spaulding dam, California. II Eng N 73:1057 Jo 3 '15
Construction plant at the Nepaug dam, Hartford, Conn. II Eng N 74:25-6 J1 1 '15
Cost of depositing concrete in bays under water. II. R. Ferriss. Eng & Contr 43:128 F 10 '15
Improved chuting of concrete. A. M. Wolf. Eng N 74:812 S 23 '15
Light traveling elevator facilitates concreting on building work. R. Shannon. II diags Eng Rec 71:755 Jo 12 '15
Long reach given mixer boat by trussed boom supporting chutes. C. R. Andrew. II Eng Rec 73:552 O 30 '15
Minimum slope for concrete chutes. W. H. Inley. Eng & Contr 44:400 N 17 '15
Mixing, curing and placing concrete with high pressure steam. II. P. Brown. II Eng & Contr 43:199-200 Mr 3 '15
Movable concrete tower; home-made skip. L. E. Palmer. II Eng N 73:637 Ap 1 '15
Nearness of railway tracks aids concreting of retaining walls. K. C. Cardwell. II Eng Rec 73:269-70 Ag 24 '15
Paving river-beds with concrete. II Sci Am 113:562-3 O 23 '15
Placing concrete in reservoir walls by compressed air, Montreal. II diag Eng N 73:122-3 Ja 21 '15
Placing concrete in wall and dam of water supply reservoir at Montreal by compressed air method. II diag Eng & Contr 43:138 F 10 '15
Placing concrete under water. Concrete Cem 6:240-51 My '15
Placing concrete under water. B. A. Howes; L. C. Wason. Concrete Cem 6:252-4 D '14
Placing the Milwaukee waterworks intake crib. R. E. Stoelting. II diag Eng N 73:1058-9 Jo 3 '15

Plastic concrete mattress for river revetment. II diags Eng N 74:262-3 Ag 5 '15
Pneumatic outfit delivers concrete 1300 feet to tunnel forms. II Eng Rec 71:246 F 20 '15
Proper regulation of air prevents clogging of pneumatic mixers. H. A. Lecuw. diag Eng Rec 72:450 O 9 '15

Records of operation in handling concrete with compressed air. II diag Concrete Cem 5:260-3 D '14

Test concrete poured 700 feet through vertical pipe. Eng Rec 72:476 O 16 '15

Trussed-steel chute places concrete economically on slope. H. V. Knouse. II Eng Rec 72:491 O 16 '15

Wear of pipe and trough conveyors for concrete and concrete materials. Eng & Contr 43:235-6 Mr 17 '15

World's record in concrete placing. J. E. Cassidy. Eng Rec 71:276 F 27 '15

See also Concrete lining; Gunite

Concrete plants

Central plant for concreting over large area. F. L. Shea. II plan Eng N 74:458-9 S 2 '15
Cold weather construction methods used in erecting Hotel Traymore. D. L. Knoodler. II diags Concrete Cem 7:172-4 N '15
Concrete fence post factory of the C. B. & Q. R. Co., Havelsok, Neb. W. W. Midridge. II Concrete Cem 6:99-101 F '15
Concrete mixing and placing, Ford building, Buffalo. II plan Eng N 74:1083-4 D 2 '15
Concrete plant for large canal lock. II diags Eng N 73:1078-9 Jo 3 '15
Concreting plant for large Chicago warehouse. II plans Eng N 74:289-91 Ag 12 '15
Concreting plant with one-man control. II Eng N 73:1132 Jo 10 '15
Construction plant and methods for concrete work on the Lock twelve dam, Coosa river, Alabama. J. L. Snyers and A. C. Polk. diags plan Eng & Contr 43:260-5 Mr 24 '15
Construction work on Traymore hotel, Atlantic City. II plan Eng N 74:80-1 J1 8 '15
Equipment of a concrete brick plant in hospital broom shop. II. R. Jenks. II plan Concrete Cem 6:193-5 Ap '15
Features of a large winter concreting job. II plan Eng N 73:538-40 Mr 18 '15
Layout, operation and selling methods of a structural tile manufactory. II. Whipple. II diag Concrete Cem 6:64-9 F '15
Methods and plant used in constructing the foundations for the Field museum of natural history, Chicago. III. II plans Eng & Contr 44:402-5 N 24 '15
One huge single-lift lock at Louisville will guard the entrance to the Portland canal. II plan Eng Rec 71:794-6 Jo 26 '15
Reinforced-concrete frame of Hotel Traymore erected at rate of a floor a week. II plans Eng Rec 72:550-1 J1 10 '15
Reinforced-concrete shaft sets. L. D. Davenport. II plans Eng & Min J 99:447-8 Mr 6 '15
Superstructure of Chicago municipal pier. II Eng N 74:306-8 Ag 12 '15
Track elevation work of the Chicago & Western Indiana R. R. in Chicago. II plan Ry R 57:651-3 N 20 '15
Unit-construction system applied to a three-mile concrete viaduct to reduce the cost. II diags plan Eng Rec 72:248-51 Ag 28 '15
Well-designed concrete plant aids construction of waterworks dam. II plan Eng Rec 72:602-4 N 13 '15

Concrete plants, Portable

Concreting trains for track-elevation work. II Eng N 74:315-17 Ag 12 '15
Floating concreting plant with mixer in tower. II Eng N 74:318-19 Ag 12 '15
Mast and boom concreting plant. It. C. Hardman. II Eng & Contr 43:427-8 My 12 '15
Placing a concrete lining in the Sandy Ridge tunnel. II plan Ry Age 59:553-6 S 17 '15; Same. Ry R 57:327-32 S 11 '15; Same (Self-propelled compressed-air mixing plant) Eng Rec 72:353-5 S 18 '15
Portable hoist towers for concreting. II diag Eng N 72:1312-13 D 31 '14
Railroad mixing plant has bins on mixer car fed by crane. M. B. Ulrich. II Eng Rec 72:521-2 O 23 '15

Concrete poles. See Poles, Concrete

- Concrete pontoons.** See Pontoons, Concrete
- Concrete posts.** See Fence posts, Concrete
- Concrete protection.** See Concrete--Protection
- Concrete railings.** See Railings, Concrete
- Concrete railroad ties.** See Railroad ties, Concrete
- Concrete reservoirs.** See Reservoirs, Concrete
- Concrete roads.** See Roads, Concrete
- Concrete roofs.** See Roofs, Concrete
- Concrete sewers.** See Sewers, Concrete
- Concrete sidewalks.** See Sidewalks, Concrete
- Concrete silos.** See Silos, Concrete
- Concrete slabs**
 Casting concrete-slab bridges for the Pennsylvania R. R. L. M. Schrufer. *Eng & N* 74:125-6 J 15 '15
 Chart for the design of concrete slabs. *Concrete Cem* 7:29 J 1 '15
 Chicago flat-slab ordinance; discussion. *Eng & N* 73:127-7 D 24 '14
 Data on reinforced concrete railroad bridges and extent to which such bridges are used. *diag plan Eng & Contr* 43:29-32 Ja 13 '15
 Designing of reinforced concrete slabs subjected to bending and compression. A. Bull. *Eng & Contr* 43:464-6 My 19 '15
 Economic design of concrete slabs. J. N. Jensen. *Eng Rec* 71:170-1 F 6 '15
 Federal court of appeals decision on flat slab patents. *Eng & N* 73:91-2 Ja 14 '15
 Field methods in concrete construction beam and slab forms. J. Cochran. *diag Concrete Cem* 8:285-8 J 15 '15
 Figuring strength of concrete roof slab. *diag Eng* 37:55 Ap '15
 Flat-slab bridges at Denver combine permanency and good appearance. W. H. Wheeler and C. A. J. Turner. *diag Eng Rec* 72:38-40 J 10 '15
 Flat slabs in 1900. H. W. Adams. *Concrete Cem* 6:213-14 Ap '15
 Girderless concrete slabs. D. F. Stockbridge. *Eng Rec* 71:180 F 6 '15
 Large saving in steel effected by new system of flat-slab reinforcement; Youth's companion building. *diag Eng Rec* 72:450-2 O 9 '15
 Material cost of concrete slabs. *Concrete Cem* 7:182 N '15
 Mechanics of reinforced concrete under flexure in beam and slab types. C. A. J. Turner. *Boston Soc C E J* 1:383-94 S '14; *Discussion*. 1:499-508; 2:23-47 N '14, Ja '15
 Results of tests of cinder concrete floor slabs, with conclusions and recommended methods of design. H. Perrine and G. E. Stebbins. *Eng & Contr* 43:379-83 Ap 28 '15
 Results of tests to determine the distribution of loads from concrete floor slabs to steel joists; abstracts. *Eng & Contr* 44:385-7 N 10 '15; *Eng Rec* 72:578-80 N 6 '15; *Eng & N* 74:833 N 11 '15
 Shrinkage and time effects in reinforced concrete. P. H. McMillan. *di Minn U Bul* 3:1-41 '15; *Abstracts*. *Eng & N* 73:502-3 Mr 11 '15; *Eng Rec* 72:561-2 Ag 28 '15; *Eng & Contr* 44:308-10 O 20 '15
 Test of a peculiarly designed concrete slab. *diag Eng & N* 73:1070 Ja 3 '15
 Test of full-size reinforced-concrete bridge slab. *Eng Rec* 71:26 Ja 2 '15
 Thin concrete base, reinforced, for pavements. C. E. Pope; J. I. Tucker. *Eng Rec* 72:174-5 Ag 7 '15
 Thin concrete base, reinforced, may save 50 cents a square yard in paving costs. J. I. Tucker. *Eng Rec* 71:719-20 Ja 5 '15
- Concrete stairways.** See Stairways, Concrete
- Concrete standpipes.** See Standpipes, Concrete
- Concrete stone**
 New Delaware and Hudson office building at Albany. N. Y. M. T. Reynolds. *di Concrete Cem* 6:289-93 Ja '15
 Patents on sand molds in concrete stone manufacture. *Concrete Cem* 7:136 O '15
 Stone facing aggregates in colors. *Concrete Cem* 7:159 O '15
- Synthetic stone as used in the construction of Catskill aqueduct buildings. H. L. Rogers. *diag Concrete Cem* 6:125-8, 132-3 Mr '15; *Abstract*. *Eng & N* 40:272 My '15
 Use of lime hydrates in factory-made concrete units. *Concrete Cem* 7:186-7 N '15
- Concrete tanks.** See Tanks, Concrete
- Concrete ties.** See Railroad ties, Concrete
- Concrete tile**
 Layout, operation and selling methods of a structural tile manufactory. H. Whipple. *diag Concrete Cem* 6:64-9 F '15
See also Drain tile
- Concrete trestles.** See Trestles, Concrete
- Condemnation of land**
 Right of a mining or ore-milling company to condemn land. A. L. H. Street. *Eng & Min J* 100:767 N 6 '15
- Condensed milk.** See Milk, Condensed
- Condenser manifold**
 How time and money were saved by welding; oxy-acetylene process saved 13 days. *di Foundry* 43:235 Je '15
- Condensers, Ammonia.** See Ammonia condensers
- Condensers (electricity)**
 Helley power condensers. *di Elec R & W Elec'n* 67:856-7 N 6 '15
 Moschick condenser; abstract. C. C. Garrard. *diag Elec W* 66:710 S 25 '15
- Condensers (steam)**
 Air in jet-condenser practice. E. Brown. *Power* 41:404-5 Mr 23 '15
 Barometric condenser used as a water heater. K. M. Gilbert. *plan Power* 42:230 Ag 17 '15
 Basis for rational design of heat transfer apparatus. E. E. Wilson. *Am Soc M E J* 37:516-9; *Discussion*. 37:549-51 S '15
 Cleaning of condenser tubes. *Power* 42:738 N 23 '15
 Condensers for evaporating apparatus. E. W. Kerr. *diag Met & Chem Eng* 13:551-7 S 1 '15
 Corrosion of condenser tubes. E. Bate. *Gen Elec R* 17:882-90 S '14; *Abstract*. *Met & Chem Eng* 12:656-7 O '14; *Abstract*. *Ind Eng* 14:413-14 O '14
 Corrosion of condenser tubes. *Power* 41:355 Mr 9 '15
 Deane ejector condenser. *di Power* 41:546 Ap 20 '15
 Drafting 3000-hp. barometric jet condenser. C. A. Hirschberg. *di Power* 42:546-8 O 19 '15
 High vacuum with surface condenser. *di Power* 42:338-9 M 7 '15
 Interpretations of data on steam-condenser performance. H. A. Cozzens, Jr. *Elec W* 66:1084-5 N 13 '15
 Large-sized surface condenser. *diag Elec W* 65:124 Ja 9 '15
 Large surface condenser for Commonwealth Edison company. *diag plans Power* 41:474-7 Ap 6 '15
 Modern power-house condensing plant. A. Arnold. *Int E E J* 63:848-50 Je 15 '15
 New condenser gauge; the Seanes vacuum efficiency and absolute pressure gauge. *diag Power* 40:877-8 J 22 '14
 Notes on the cooling of condensing water. C. E. Jeffrey. *Int E E J* 63:824-8 Je 15 '15
 Outfit for testing surface-condenser tubes. J. Parrish. *diag Power* 42:624 N 2 '15
 Popular misconceptions concerning condensers. E. R. Low. *Power* 42:116-17 J 16 '15
 Removing air from condensers. C. W. Caywood. *plan Power* 41:723 My 25 '15
 Removing the air from surface condensers. E. T. Blinn. *di Power* 42:591-2 O 26 '15
 Schema to detect salt-water leakage in surface condensers. *di Elec W* 66:1093 N 13 '15
 Simple physical tests for condenser tubes. H. A. Cozzens, Jr. *di Elec W* 66:342 S 18 '15
 Surface condenser; with discussion. C. E. Braun. *diag Am Soc M E J* 37:459-66 Ag '15
 Two-stage condenser. P. Banuel. *diag Power* 42:403-7 S 21 '15; *Excerpta*. *Elec W* 66:1148-9 N 20 '15
- Ways of cleaning steam condenser tubes that save time. *Elec W* 66:1021-2 N 6 '15
See also Cooling towers; Steam engines
- Conductivity, Electric.** See Electric conductivity

- Conductors, Electric.** See **Electric conductors**
- Conduits**
 Conducts and insulation for heating pipes. C: L. Hubbard. *diag* Dom Eng 73:252-3 Ag 28 '15
 Oneida street crossing under Milwaukee river. II plan Eng Rec 70:816-17 D 5 '14
See also Electric conduits; Subways (conduits); Water conduits
- Confectionery**
 Electric drive in confectionery making. II Elec W 66:791-2 Mr 27 '15
- Conference of governors**
 8th annual conference, Boston, Aug. 24-27. Elec It & W Elec'n 67:482-3 S 11 '15
- Congo.** See **Kongo, Belgian**
- Coniferae**
 Oils of the coniferae. IV—The leaf and twig oils of digger pine, lodgepole pine, and red fir. A. W. Schorger. J Ind & Eng Chem 7:24-6 Ja '15
 Tannin content of Pacific coast conifers. H. K. Benson and T. G. Thompson. II J Ind & Eng Chem 7:915-16 N '15
 Yield of by-products from destructive distillation of some western conifers. H. K. Benson and M. Darrin. J Ind & Eng Chem 7:916-18 N '15
- Conjuring**
 Methods of Hindu jugglery and magic; the Indian basket trick. S. Ghosh. II Sci Am 111:526-7 D 26 '14
- Connecticut**
 Colonial architecture in Connecticut. W. S. Bassett. II Arch Rec 37:360-9, 445-52, 547-56; 38:672-80 Ap-Je, D '15
- Connecticut master plumbers' association**
 25th annual convention, Bridgeport, Conn., May 12. Dom Eng 71:223-5 My 23 '15
- Conservation of resources**
 National conservation and water powers. H. H. Chapman. II Am For 21:981-6 O '15
See also Forest conservation
- Constantinople**
Defenses
 Defense of Constantinople. H. C. Woods. II Sci Am 80:2-3 J 13 '15
- Constitution (frigate)**
 Fight between the Constitution and the Guerriere. II Sci Am 113:14-15 J 13 '15
- Constrained wave.** See **Ship resistance**
- Construction.** See **Architecture; Building; Engineering**
- Construction camps**
 Buffalo, Rochester & Pittsburgh standard outfit cars. II plans Ry Age 58:1445-7 Je 18 '15
 Construction camp, Elephant Butte, N. M. J. I. Graham. II *diag* map Eng N 72:1300-4 D 31 '14
 Feeding the multitude; experience in boarding a construction force of 5,000 men. Eng & Contr 43:sup28-9 My 5 '15
 Knockdown camp buildings. C: T. Roe. II *diag* Eng N 73:31-2 Ju 7 '15
 Messhouse management at the Arrowrock dam. R. R. Lawson. II Eng N 73:1201-3 Jo 24 '15
 Modern small sized construction camp with some costs on feeding men. R. W. Robinson. *plan* Eng & Contr 43:518-20 Ap 7 '15
 Organization and equipment of convict camps in Georgia; methods and cost. J. C. Koch. II *diag* Eng & Contr 43:433-5, 500-2 My 12, Jo 2 '15
 Quebec-bridge camp and yards. II plan Eng N 74:748-9 O 14 '15
 Six types of construction camp garbage and refuse incinerators. *diag* Eng & Contr 44:163-5 S 1 '15
 Solution of the construction camp club house problem. Eng & Contr 44:118 Ag 18 '15
 System in managing camp boarding-house pays contractor. T. Kadington. Eng Rec 71:662 My 22 '15
- Consular service**
 Consular service in business getting. Iron Age 96:526-7 S 2 '15
- Costs for scientific and technical commissions.** W. P. Digby. Inst Jd J 88:789-801 Je 1 '15; *Excerpts.* Met & Chem Eng 13:502 Ag '15
- Contact electricity**
 Contact electrification and the electric current. F. Sanford. Sci Am S 80:322-3 N 20 '15
- Continuation schools.** See **Evening and continuation schools**
- Continued fractions.** See **Fractions, Continued**
- Contraband of war**
See also Cotton as contraband of war
- Contract letting.** See **Contracts, Letting of**
- Contractors**
 Accounting system for contractors. Elec R & W Elec'n 66:152 Ja 23 '15
 Business relation between contractor and engineer. H. B. Burdell. Munic Eng 49:73-4 Ag '15
 Contractor and management engineering. Eng & Contr 42:573 D 23 '14
 Contractor's method for holding good men. M. C. Tuttle. Eng N 73:694-5 Ap 8 '15
 Cost of doing business. C: W. Hill. Dom Eng 71:157, 306-7 My 8, Je 12 '15
 Cost system for contractor or jobber. Metal Work 83:599-600 Ap 23 '15
 Diesel engine for the contractor—why not? H. D. Hammond. II Eng Rec 71:409-10 Mr 27 '15
 Does publication of costs endanger the contractor? Eng & Contr 42:329-30 O 7 '14
 Efficiency system for road contractors. J: H. Hammond. Eng & Contr 43:562-3 Je 23 '15
 Engineering contractor. H. P. Gillette. Eng & Contr 44:315-17 O 20 '15
 Engineers from the contractor's viewpoint. R: W. Sherman. Eng N 72:1138 D 3 '14
 From the contractor's point of view. W. A. Rogers. Eng Rec 71:15 Ja 2 '15
 Greater care in employing workmen will pay the contractor. H. D. Hammond. Eng Rec 71:501-2 Ap 17 '15
 Hide posts in the contracting business. J. C. Walker. Metal Work 83:607-9 Ap 23 '15
 Keeping accurate daily and total cost sheets will pay the contractor. C. B. Montgomery. Eng Rec 71:535-6 Ap 24 '15
 Model record of distribution of construction plant. II Eng N 74:218-19 J 1 29 '15
 Problem of extras. Concrete Con 5:255 D '14
 Selecting construction power-plant system. Eng N 74:865-7 N 18 '15
 Specialized experience of engineers and contractors vital to country's defense. C: Perrine. II Eng Rec 72:594-6 N 13 '15
 System for the engineer and contractor. T: Hurwick. *text* & Ven 11:27-34 N; 15-21 D '14; 12:18-22 Ja '15
See also Day labor; Electric contractors
- Contractors' camps.** See **Construction camps**
- Contracts**
 Acceptance binds parties to contract. E. J. Buckley. Metal Work 84:365 N 19 '15
 Avoiding being at salesman's or solicitor's mercy. E. J. Buckley. Elec It & W Elec'n 67:486-6 S 11 '15
 Changing plans on the contractor. Eng Rec 71:351 Mr 30 '15
 Comment on cost of quantity surveys of buildings and a proposed survey guarantee. W. K. Palmer. Eng & Contr 43:518-19 Je 9 '15
 Contracts by municipal officers. J: Simpson. Munic J 39:807-8 N 25 '15
 Contractual relations between clients and accountants. H. M. Temple. J Account 30:291-6 O '15
 Court decision on the inviolability of test boring records. Eng & Contr 43:416-17 My 12 '15
 Effect of contract not to go again into plumbing business. Dom Eng 70:170 F 6 '15
 How a Utah mining contract was interpreted. A. L. H. Street. Eng & Min J 100:675-6 O 23 '15
 Misleading boring records are grounds for recovery of damages by contractors. Eng Rec 71:554-5 My 1 '15
 Some contracts must be in written form. E. J. Buckley. Metal Work 83:491 Mr 26 '15
See also Bridge contracts; Building contracts; Commercial law; Contractors; Guaranties and sureties; Heating contracts; Partnership; Roads—Contracts; Sales; Street lighting—Contracts; Trade agreements

Contracts, Letting of

Alternate specifications for public work are legal. L. T. Pierce. *Eng N* 71:1048-50 N 25 '15
 Truck work by contractor or way department. S. Clausmann. *Elec Ity J* 45:895-6 My 8 '15

Controllers, Electric. See Electric controllers**Convalescent homes**

Burke foundation for convalescents, White Plains, N. Y. *II Arch & Bldg* 47:317-23 S 8 '15
 Plumbing and heating in Burke home. *II Metal Work* 83:506-7 J. Ap 2 '15
 Winifred Masterson Burke relief foundation, White Plains, N. Y.; views and plans. *Brickb* 21:pl 91-6 J1 '15

Conversion tables. See Temperature Measurement**Converters**

Concentration of gold in bottoms in the copper converter; abstract. *II, P. Collins. Met & Chem Eng* 13:416 J1 '15
 Copper converter patent. *diag Met & Chem Eng* 13:924 D 1 '15
 Gunster-lined converters. J. Gregson. *Iron Age* 94:1292 D 3 '14
 Limitations of the electric furnace in the manufacture of steel castings. M. P. Luke. *Met & Chem Eng* 13:137-8 Mr '15
See also Foundry practice; Metallurgy; Ore treatment

Converters, Rotary. See Rotary converters**Converters, Synchronous. See Rotary converters****Convex heads. See Boiler heads****Conveying machinery**

Belt conveyors will help simultaneous driving and lining of air tunnel. G. D. Emerson. *II diag map Eng Rec* 72:218-19 Ag 21 '15
 Conveyor-belt calculating chart. J. D. Mooney and D. L. Burnell. *Am Inst Min* 15 Bul 105: 1937-9 S '15; Same. *Eng & Min J* 100:562-3 O 2 '15; Same. *Met & Chem Eng* 13:818-19 N 1 '15; Abstract. *Am Soc M E J* 37:510-11 O '15
 Conveyors and conveyor systems. C. F. Herington. *diag Mach* 21:386-8 Ja '15
 Cost of conveyors at the Arizona copper co.'s new smelter. *diag Eng & Min J* 99:329-30 F 13 '15
 Cost of loading bricks into a box car by means of a portable belt conveyor. A. C. Haskell. *diag Eng & Contr* 44:201 S 15 '15
 Clifford-Wood bucket conveyor. *II Power* 42:78 J1 20 '15
 Handling bricks with gravity roller conveyors. W. B. Conant. *II Eng N* 74:834-5 O 28 '15
 Marine terminal machinery. *II Sawyer. Int Marine Eng* 20:109-11 Mr '15
 Mechanical handling of coal and ashes in the power plant. C. C. Brinley. *II diag Eng M* 49:872-87; 50:65-77 S-O '15
 Methods and costs of belt conveyor earth-handling for the Lahontan dam. *Eng & Contr* 44:414 N 24 '15
 Simple conveyor-belt cleaner. *II Eng & Min J* 100:601 O 9 '15
 Unique conveyor in automobile plant. *II plan Iron Age* 96:565-8 S 9 '15
See also Ash handling; Buckets; Cableways; Coal handling; Cotton handling; Cranes, derricks, etc.; Freight handling; Hoisting machinery; Loading and unloading; Mail handling; Mechanical handling; Mining machinery; Ore handling; Pneumatic tubes; Telpherage

Conveyors. See Conveying machinery**Convict labor**

Colorado makes 50 per cent saving with convict labor. J. E. Maloney. *Eng Rec* 72:444 O 9 '15
 Convict classification for state road work. C. P. Coleman. *Eng Rec* 71:751-2 Ja 12 '15
 Convict labor for highway work. C. P. Coleman. *Good Roads* n 8 10:208-10 O 2 '15
 Convict labor in road construction in Colorado; with discussion. T. J. Kihlhart. *Good Roads* n 8 9:101-3 Mr 8 '15; Excerpt. *Eng N* 73:375 F 25 '15
 Convict labor on country roads. G. C. Warren. *II Munic Eng* 48:26-35 Ja '15

Convict work in Arizona. F. G. Twitchell. *Munic J* 39:430-2 S 16 '15
 Organization and equipment of convict camps in Georgia; methods and cost. J. C. Koch. *II diag Eng & Contr* 43:433-5, 500-2 My 12, Je 2 '15
 Road building by convict labor. *II Good Roads* n 8 8:211-16 D 5 '14
 Road building with convict labor in Fulton county, Georgia. W. T. Wilson. *II Eng & Contr* 42:440-2 N 4 '14
 Road construction in Reading township, Livingston county, with convict labor. *II, FI. Depmoler. II Eng & Contr* 41:39-41 J1 14 '15
 Utilization of short-term convicts for highway work in Georgia. J. L. Stanford. *Munic Eng* 48:121-3 F '15; Same. *Eng & Contr* 43: 230-1 Mr 31 '15

Cook, Frederick Albert, 1865-

Dr. Cook and Crocker Land. E. S. Balch. *Sci Am* 113:359 O 23 '15
 Dr. Cook as an object lesson. *Sci Am* 113:286 O 2 '15

Cook county, Illinois

Cook county tuberculosis colony at Oak Forest, Ill. C. A. Erikson. *II plans Brickb* 21: 273-6, pl 158-60 N '15
 Highway program of Cook county, Illinois. *II map Eng Rec* 70:448-9 D 12 '14

Charities

Cook county infirmary at Oak Forest, Ill. C. A. Erikson. *II plans Brickb* 21:277-82, pl 161-5 N '15

Cookers, Steam. See Steam cookers**Cookery**

See also Baking powder; Canning and preserving; Electric cooking; Gas cooking; Kitchens

Cooking fats. See Oils and fats**Coolidge tube. See X rays****Cooling**

Air-compressor cooling with water barrels. J. Simmons. *II Eng & Min J* 100:189 J1 31 '15
 Air cooling plant, New York Central R. R., Mott Haven yard, New York. M. Purcell and M. F. Gannon. *II plans Ity* 11 56:703-5 My 22 '15
 Air cooling with water. I. N. Evans. *Heat & Ven* 12:41 J1 '15
 British Portland cement making machinery; cooling of cement clinker. *diag Engineer* 120:126-8 Ag 6 '15
 Cooled drinking water. *II, P. Mason. Am Water Works Assn J* 24:22 33 Jo '15; Abstract. *Eng M* 40:916-17 S '15
 Cooling two rooms in a country residence. A. M. Feldman. *diag Heat & Ven* 11:33-4 Mr '14; Same. *Dom Eng* 60:298 Mr 7 '14; Same. *Metal Work* 81:282-3 F 13 '14; Same. *with discussion. Am Soc Heat & V* 13 20:70-85 '14
 Cooling water and air for power plants. *II Sci Am* 80:117 Ag 21 '15
 Counter-current lubricating oil cooler. *diag Iron Age* 96:139 J1 22 '15
 Heating and ventilating an office building by electricity; Hydraulic power co.'s plant at Niagara Falls. C. F. Herington. *II diag plan Heat & Ven* 12:15-22 Jo '15
 Principle factors governing the choice of method of cooling power transformers as related to their load and operating conditions. W. S. Moody. *II Gen Elec R* 18: 839-41 Ag '15
 Sprays for cooling water. *II diag Met & Chem Eng* 13:101 Jo '15
 Survey of the refrigeration field as it exists today. *II, I. Hollman. Gen Elec R* 18:66-7 Ja '15
 Ventilating and cooling a church. *plan Bldg Age* 27:81-2 S '15
 Ventilating and cooling church edifice. *plan Metal Work* 82:757-8 D 11 '14
 Ward-cooling plant in a hospital. A. M. Feldman. *II plans Am Soc Heat & V* 13 20:74-9 '14; Same. *Metal Work* 81:356-8 F 27 '14; Same cond. *Heat & Ven* 11:21-3 F '14
See also Automobile engines—Cooling; Cold storage; Cooling ponds; Cooling towers; Cooling water; Gas and oil engines—Cooling

- Cooling ponds**
Cooling plant at Bluestone. Elec Ry J 45:1123 Je 12 '15
Cooling ponds for condensing engines. L. H. Parker. Il Textile World 49:626-30 S '15
Cooling-water pond and system for a city substation. F. Buch. diag Elec W 65:297-9 Ja 30 '15
Costs on cooling-pond construction. Il Elec W 66:808-9 O 9 '15
Gain by use of spray nozzles. Il Power 42:578 O 26 '15
Making a spray cooling pond. J. I. Blair. Il plan Power 41:516 Ap 13 '15
New spray head for cooling ponds. Il diag Elec W 66:880 O 16 '15
Spray cooling systems. L. H. Parker. Power 42:563-4 O 19 '15
Thomas spray head. Il Power 42:644-5 N 9 '15
- Cooling towers**
Calculations for the operation of the cooling tower. W. Kent. Ind Eng 15:568-72 Ag '15
Cooling towers and cooling ponds; abstract. W. G. Stephan. Am Soc M 19 J 37:69 Ja '15
Cooling water of condensation; introduction to a collection of psychrometric tables for cooling tower work. Textile World 49:693-4 S '15
Electrification on the London and South-western railway. diag Engineer 120:348-9 () 8 '15
Forced-draft cooling towers. R. R. Goodrich. diag Power 41:121-4 Ja 26 '15
Getting the proper vacuum in summer. J. Wilmore. diag Elec W 66:358-63 Ag 14 '15
Home-made cooling tower. A. D. Williams. Il diag Power 41:847-8 Je 22 '15
Notes on the cooling of condensing water. C. S. Jeffrey. Inst E E J 53:831-8 Je 15 '15
Stacker cooling towers. Il Power 43:306-6 Ag 31 '15
Two-stage condenser. P. Bancel. diag Power 42:402-7 S 21 '15
Vacuum fluid cooler. diag Power 41:542-3 Ap 20 '15
Washington avenue power plant, Scranton, Penn. W. O. Rogers. Il Power 41:809-70 Jo 29 '15
- Cooling water**
Gas-engine cooling water. G. A. Field. diag Power 41:438 Mr 30 '15
- Cooperation**
Cooperative organization business methods. W. H. Kerr and G. A. Nubstoll. bibliog U S Agric Bul 178:1-21 '15
Manufacturing plant general store of the Cleveland hardware company. F. L. Prontiss. Il Iron Age 96:233-6 J1 20 '15
Work store operated at a profit. Il Iron Age 95:1348 Ja 17 '15
See also Profit sharing
- Cooperative stores.** *See Cooperation*
- Copper**
Absorption of gases by refined copper. W. Stahl. Eng & Min J 100:52 J1 10 '15
Action of acetylene on metals. A. C. Morrison. Sci Am 113:487 D 4 '15
Battery array of copper: report of subcommittee. J Ind & Eng Chem 7:546-7 Ja '15
Commercial classification of refined copper. L. Addicks. Foundry 43:32-4 Ja '15; Same. Iron Tr R 56:329-31 F 11 '15
Copper assay. S. Fischer, jr. Met & Chem Eng 12:773 D 14
Copper deposits in the Red Beds of south-western Oklahoma. A. M. Puth. Il Econ Geol 10:140-50 F '15
Copper wire tables. U S Bur Stand Circ 31:1-76 '14
Determining weight of deposit. L. C. Wilson. Metal Ind n s 13:152-4, 277-8 Ad, J1 '15
Effects of repeated remelting on copper. F. O. Clements. Il Metal Ind n s 12:374-6 S '14; Same. Iron Tr R 55:486 S 10 '14; Same cond. Foundry 43:71-2 F '15
German copper reserves in electric circuits. F. Loppé. Eng M 50:117 O '15
Heat treatment of copper and brass. C. R. Hayward. Il Metal Ind n s 13:275-7 J1 '15
Incremental armature copper losses at no-load and armature tooth eddy-current losses. A. Press. diag Inst E E J 53:820-3 Ja 15 '15
Metallography of copper. W. Campbell. Met & Chem Eng 13:721 O 15 '15
Molybdenum and copper. C. Vickers. Foundry 43:344+ S '15
New test for copper. W. G. Lyle, L. J. Curtman and J. T. W. Marshall. Am Chem Soc J 37:1471-81 Je '15
Physical properties of copper as effected by small quantities of phosphorus manganese and tin. C. P. Karr. Metal Ind n s 12:513-14 D '14
Reduction of copper oxide in alcohol vapor in reducing sugar determinations and copper analysis. A. Wedderburn. J Ind & Eng Chem 7:610-11 J1 '15
Specific heat of copper in the interval 0° to 50° C. D. R. Harper. Il U S Bur Stand Bul 11:259-318 Mr 1 '15
Substitutes for copper in Germany. Elec W 66:1040 N 6 '15
Symposium on copper. Met & Chem Eng 13:657-62 O 1 '15
Use of hydrofluoric acid in the separation of copper and lead from tin and antimony by means of the electric current. L. W. McCay. Am Chem Soc J 36:3375-81 N '14
Welding copper and copper alloys by acetylene methods. J. E. Springer. Ry Age (Mech ed) 89:367-9 J1 '15
See also Brass; Bronze; Copper metallurgy; Copper mines and mining; and other headings beginning Copper
- Copper alloys**
Brass and bronze--offsets of copper. J. R. Schipper. Il map Automobile 33:315-19, 368-70, 412-13 Ag 19-8 2 '15
Copper alloys with notes on brass founding. H. L. Benson. diag Metal Ind n s 13:318-21 Ag '15
Eutectic of copper alloys. R. Jonson. Metal Ind n s 13:283-4 J1 '15; Same. Eng Rec 72:22-3 J1 3 '15; Same, with discussion. Foundry 43:311-12 Ag '15
Iodide method applied to the determination of copper in the presence of tin. R. W. Colman. J Ind & Eng Chem 7:764-6 S '15
Melting point of copper alloys. Am Gas Light J 103:109 Ag 16 '15
Rapid analysis of bearing metals and high-copper content alloys. G. G. Luth. Met & Chem Eng 13:346-7 Jo '15
See also Brass; Bronze; Gun metal
- Copper compounds**
Salts of the halogenoacetic acids. W. G. Patonman and D. B. Conrad. Am Chem Soc J 37:2554-7 N '15
- Copper converters.** *See Converters*
- Copper cyanide**
Copper cyanide plating solutions. M. C. Weber. Metal Ind n s 13:35-6 Mr '15; Same. Met & Chem Eng 13:256-6 Ap '15; Same. Foundry 43:197-8 My '15; Same. Sci Am N 79:302 My 8 '15
Economy and efficiency of copper cyanide. C. H. Proctor. Foundry 43:199-200 My '15
Economy of copper cyanide. C. Littmar. Metal Ind n s 12:526 D '14
- Copper founding**
Application of the Coolidge tube to metallurgical research. W. P. Davay. Il Gen Elec R 18:134-6 F '15; Same. Engineer 119:350-1 Ap 9 '15; Same. Sci Am N 79:331 My 22 '15
Boronized cast copper; abstract. R. Weintraub. Met & Chem Eng 13:721 O 15 '15
Effects of repeated remelting on copper. F. O. Clements. Il Metal Ind n s 12:374-6 S '14; Same. Iron Tr R 55:486 S 10 '14; Same cond. Foundry 43:71-2 F '15
- Copper industry and trade**
Australian copper production. 1914. W. P. Geary. Eng & Min J 99:191 Ja 23 '15
British Columbia copper co. Eng & Min J 100:116 J1 17 '15
China Copper report for 1914. Eng & Min J 100:20-1 J1 3 '15
Contributions of the chemist to the copper industry. J. H. F. Horroshoff. J Ind & Eng Chem 7:274-5 Ap '15
Copper and the electrical industry. Il Elec W 66:1017-19 N 6 '15
Copper in Germany. Eng & Min J 99:228-9, 252, 453 Ja 30, Mr 6 '15
Copper statistics. Eng & Min J 99:51-6 Ja 9 '15

Copper industry and trade - Continued

- Miami Copper in 1914. Eng & Min J 99:766 My 1 '15
 Nickel, copper and mercury as affected by the war. J Ind & Eng Chem 7:71-2 Ja '15
 Non-ferrous metals and the war. W. R. Ingalls. Iron Age 96:420-1 Ag '15
 Position of copper during the war period. J. B. C. Kershaw. Engineer 119:468-9 My 7 '15
 Production of copper in 1914. Mee R & W Mee'n 66:313 F '15
 Production of copper in 1914. Eng & Min J 99:706 Ap '15
 Ray Consolidated in 1914. Eng & Min J 99:707-8 Ap '15
 United States smelting, refining and mining co. report for 1914. Eng & Min J 99:823 My 8 '15
 Utah Copper in 1914. Eng & Min J 99:824-5 My 8 '15

See also Butte & Superior copper co.

Copper metallurgy

- Advances in copper smelting. F. Laist. Met & Chem Eng 13:858 O 1 '15
 Anaconda leaching and acid plants. E. P. Mathewson. II plans Eng & Min J 99:723-7 Ap '15
 Arizona copper co.'s Dorr thickener. D. Cole. II diag Eng & Min J 100:131-4 Jl '15
 Bolivian copper concentration. F. A. Sundt. Eng & Min J 100:102 Jl '15
 Braden copper co.'s concentrator at Sewell, Chilo. Eng & Min J 100:894-5 N '15
 British Columbia copper co.'s smelter, Greenwood, B. C. F. K. Brunton. diag Am Inst Min 13 103:1401-17 Jl '15
 Case for copper hydrometallurgy: inexpensive and efficient treatment of smelter flue dust and carbonate ore. G. C. Westby. II Met & Chem Eng 13:295-7 My '15
 Cementation at the Wallaroo & Moonta mines. II Eng & Min J 99:438-9 Mr '15
 Chloridizing blast roasting and leaching. G. A. Keop. II diag Eng & Min J 99:265-9, 315-22 F '15
 Concentration at Nevada consolidated copper co. II diag Met & Chem Eng 13:716-17 O '15
 Copper hydrometallurgy. Met & Chem Eng 13:461 Jl '15
 Copper hydrometallurgy: patent of R. F. Bacon. Met & Chem Eng 13:872 N '15
 Copper leaching: discussion. L. D. Rickerts and others. Met & Chem Eng 13:319-24 My '15
 Copper metallurgy in 1914. Met & Chem Eng 13:5 Ja '15
 Copper metallurgy of the southwest. J. Douglas. flow sheet Met & Chem Eng 13:658-9 O 1 '15
 Copper Queen smelting works. R. H. Vail. II Eng & Min J 99:1-5 Ja '15
 Copper smelting in Japan. M. Ebisler. II diag Am Inst Min 13 Bul 95:2661-2703 N '14; Discussion. 101:1173-4 My '15
 Copper smelting in the Caucasus. map Eng & Min J 99:650-2 Ap '15
 Crushing plant of the Ohio copper co.'s mill. H. S. Lewis. II diag Eng & Min J 99:748-50 Ap '15
 Design of modern copper plants. G. H. Reputh. Met & Chem Eng 13:660-1 O 1 '15
 Designing small copper smelting plants. C. C. Christensen. II Eng & Min J 99:225-8 Ja '15
 Development of ore concentration. II: A. Marvin. II Eng M 49:218-30 My '15
 Electrolysis of copper sulphate liquor, using carbon anodes. L. Addicks. II diag Met & Chem Eng 13:748-55 O 1 '15
 Electrolytic copper refining: abstracts of papers by A. C. Clark and L. Addicks. Met & Chem Eng 13:661-3 O 1 '15
 Equipment of Arizona smelters. J. Douglas. Met & Chem Eng 13:904 D 1 '15
 Flotation at the Consolidated Arizona smelting co., Humboldt, Arizona. flow sheet Met & Chem Eng 13:807-801 D 1 '15
 Hybnette leaching process for copper ores. Eng & Min J 100:603 O 9 '15
 Hydro-electrolytic treatment of copper ores. L. L. Goodrich. II Am Inst Min 13 Bul 104:1551-94 Ag '15; Abstract. Met & Chem Eng 13:766 O 15 '15

- Hydrometallurgical treatment of Michigan copper tailings. R. B. Lohk. plan Met & Chem Eng 13:233-4 Ap '15
 Improvements at the reduction works of the Anaconda company. F. Laist. Eng & Min J 99:418-19 F '15
 Improvements in electrolytic copper refining: patent granted to F. R. Pyne and H. M. Green. diag Met & Chem Eng 13:816 N 1 '15
 Laist roasting patents. diag Eng & Min J 99:282-4 F '15
 Leaching at the Calumet & Hecla. Eng & Min J 99:821 My 8 '15
 Leaching copper with ammoniacal solutions. Met & Chem Eng 13:449-51 Jl '15
 Leaching experiments on the Ajo area, S. Crondale. Am Inst Min 13 Bul 92:1881-1929 Ag '14; Abstract. Met & Chem Eng 12:591-3 S '14; Excerpt (leaching-plant construction). Eng & Min J 99:981-3 N 28 '14; Excerpt (Manufacture of sponge iron as a precipitant for copper). Eng & Min J 99:326-8 F '13 '15; Excerpt (leaching-plant operation). Eng & Min J 99:575-6 Mr '15; Excerpts. Eng & Min J 99:1098-9, 1139-40 D 10-26 '14
 Metal loss in copper slags. F. E. Latho. Eng & Min J 100:216-17, 263-8, 305-8 Ag 7-21 '15
 Metallurgy of copper in 1914. L. Addicks. Eng & Min J 99:291-5 Ja 9 '15
 New copper metallurgy. H. A. McGraw. II diag Eng M 48:675-88 F '15
 Nodulizing in copper metallurgy. J. H. Payne. Eng & Min J 99:272-4 F '15
 Precipitating plant at the Copper Queen mines. C. M. Coats and G. L. Allen. II diag plan Eng & Min J 99:17-19 Ja 2 '15
 Present tendencies in copper metallurgy. R. P. Mathewson. Met & Chem Eng 13:141 Mr '15
 Problems in copper leaching: discussion. Am Inst Min 13 Bul 100:711-37 Ap '15; Discussion. 100:2459-60 D 1 '15
 Progress in copper metallurgy in the Globe district, Arizona. L. O. Howard. Met & Chem Eng 13:650 O 1 '15
 Reverberatory smelting practice of Nevada consolidated copper co. Met & Chem Eng 13:681-2 O 1 '15
 Reverberatory smelting practice of Nevada consolidated copper co. L. E. H. Pomeroy. diag plan Am Inst Min 13 Bul 98:445-53 F '15; Abstract. Met & Chem Eng 13:252-4 Ap '15
 Roasting and leaching concentrator slimes tailings. L. Addicks. II flow sheet Am Inst Min 13 Bul 104:1471-81 Ag '15; Same. Met & Chem Eng 13:531-5 S 1 '15; Discussion. Am Inst Min 13 Bul 104:2160-1 D 1 '15
 Solida smelter. F. D. Weeks. Am Inst Min 13 Bul 104:1691-5 Ag '15
 Shaft-rockhouse practice in the copper country. L. H. Goodwin. II diag Eng & Min J 99:1061-6, 1107-10, 100:7-12, 53-7 Jo 19-Jl 10 '15
 Smelting at Panulilla, Chilo. II Eng & Min J 100:787-9 N 13 '15
 Smelting of copper ores in the electric furnace. D. A. Lyon and R. M. Keeney. diag II 8 Ind Mines Bul 81:1 76 '15; Conclusion. Met Am B 80:159 Ag 28 '15
 Solution control in ferric-chloride leaching of sulphide copper ores. F. N. Flynn and H. H. Hatchett. Met & Chem Eng 13:291 My '15
 Solution stratification as an aid in the purification of electrolytes. F. R. Pyne. diag Met & Chem Eng 13:895-6 D 1 '15
 Van Arsdale's method of copper-ore treatment. Eng & Min J 100:91 2 Jl 10 '15
 Weidlein's copper process. Met & Chem Eng 13:652 O 1 '15

Copper mines and mining

- Cloncurry copper district, Queensland. W. H. Corbould. diag Am Inst Min 13 Bul 97:83-92 Ja '15
 Copper Creek district of Arizona. C. Hafer. II Eng & Min J 98:1145 D 26 '14
 Copper discovery in Norway. A. D. Udhany. Eng & Min J 99:322 F '15
 Corocoro copper district of Bolivia. F. A. Sundt. Eng & Min J 99:189-90 Ja 23 '15
 Drilling campaign of the Consolidated copper-mines co. plan Eng & Min J 99:1069-71 Jo 15 '15

Copper mines and mining—Continued

Early history of Braden mines, Sewell, Chlie. W. Braden. *Il Eng & Min J* 100:389-91, 398-9 S 4 '15

Mining camp without a peer; revolutionary methods at Bingham, Utah. G. F. Stratton. *Il Sci Am S* 80:241-4 O 16 '15

Mining low grade copper ore by Itay Consolidated. A. N. Penny. *diags Eng & Min J* 99:767-70 My 1 '15

Mining methods at Braden. H. R. Graham. *Eng & Min J* 100:831-3 N 20 '15

Mining methods of the Arizona copper co. P. B. Scotland. *diags plans Am Inst Min E Bul* 98:483-96 F '15

Starting of White Mine operations. *Eng & Min J* 99:623 Ap 3 '15

Table showing minimum grade of copper ore and profits. F. W. Foote. *Eng & Min J* 100:882 N 27 '15

Tramming and hoisting at Copper Queen mine. G. F. G. Sherman. *Il diags Am Inst Min E Bul* 106:1837-85 S '15

Two old Appalachian copper mines. J. W. Mason. *Il Eng & Min J* 99:746 Ap 24 '15

Underground mining systems of Ray consolidated copper co. L. A. Blackner. *Il diags Am Inst Min E Bul* 102:1349-50 Je '15

Ventilation of the Copper Queen mine. C. A. Mitke. *diags Am Inst Min E Bul* 106:1941-58 S '15; Discussion. 108:2477-8 D '15

Copper ores

Copper deposits of San Cristobal, Santo Domingo. T. E. Donnelly. *bibliog Il Am Inst Min E Bul* 104:1769-68 Ag '16; Discussion. 108:2473-4 D '15

Disseminated copper ores of Bingham Canyon, Utah. J. J. Beckon. *Il diags Am Inst Min E Bul* 107:2191-2236 N '16

Economic geology of the Belgian Congo, Central Africa. S. H. Hall and M. K. Shuler. *Il Econ Geol* 9:617-33 O '14; Excerpts. *Eng & Min J* 99:608-11 Ap 3 '15

Geology of the Burro mountains copper district, New Mexico. R. E. Somers. *Il maps Am Inst Min E Bul* 101:957-96 My '15; Discussion. 108:2476 D '15

Porphyry copper. P. G. Barbour. *Eng & Min J* 99:1111-12 Je 26 '15

See also Chalcoite

Copper plating

Control of brass and copper plating solutions. A. D. Cowperthwaite. *Metal Ind n s* 13:168-9 F '15

Copper cyanide plating solutions. M. C. Weber. *Metal Ind n s* 13:95-6 Mr '15; Same. *Met & Chem Eng* 13:265-6 Ap '15; Same. *Foundry* 43:197-8 My '15; Same. *Metal Am S* 79:303 My 8 '15

Copper plating as used for purposes other than ornamental. H. G. Lovering. *Metal Ind n s* 13:468-9 N '15

Determining weight of deposit. L. C. Wilson. *Metal Ind n s* 13:162-4, 277-8 Ap, J1 '15

Economy and efficiency of copper cyanide. C. H. Proctor. *Foundry* 43:199-200 My '15

Protecting silvered mirrors by copper plating. *Il diags Sci Am S* 79:28 Ja 9 '15

Copper salts

Cuprous salts of oxygen acids and a new method for preparing cuprous salts. L. C. Daniels. *Am Chem Soc J* 87:1187-71 My '15

Copper sulphate

New method for the preparation of copper sulphate. *Eng & Min J* 100:190 J1 21 '15

Use of copper sulfate in the purification of swimming pools. S. J. Thomas. *J Ind & Eng Chem* 7:496-9 Je '15

Copper sulphide

Determination of cuprous and cupric sulfide in mixtures of one another. M. Poshjak. *Am Chem Soc J* 86:2475-9 D '14

Sulphides of copper. E. Poshjak, B. T. Allen and H. E. Merwin. *Econ Geol* 10:491-535 S '15

Copper ware

Method of retinning copper ware. H. F. Munro. *Metal Work* 23:474 Mr 26 '15

Copy. See Manuscripts, Preparation of

Core making machines. See Foundry machinery

Cork

Carborundum and cork exhibits at the Panama-Pacific international exposition. *Il Met & Chem Eng* 13:469-60 J1 '15

Corliss engines. See Steam engines

Corn

Lys hulling of corn for hominy. J. W. Marden and J. A. Montgomery. *J Ind & Eng Chem* 7:860-3 O '15

Occurrence of methyl alcohol in cornillage. E. B. Hart and A. R. Lamb. *Am Chem Soc J* 36:2114-18 O '14

Corn meal

Composition of corn (maize) meal manufactured by different processes and the influence of composition on the keeping qualities. A. L. Winton, W. C. Burnet and J. H. Bornmann. *U S Agric Bul* 215:1-31 '15

Corn products

Contributions of the chemist to the corn products industry. B. T. Bedford. *J Ind & Eng Chem* 7:376-6 Ap '15

Corncribs

Concrete block cornercrib. *Il Concrete Cem* 7:86-7 Ag '15

Cornell university, Sibley college

Beginnings of Sibley college at Cornell. A. D. White. *Sibley J* 29:300-14 Jo '15

Growth of the Sibley college curriculum since 1868. H. Diederichs. *Sibley J* 29:331-42 Jo '15

Cornices

Canthover-frame cornice. *Il diags Eng N* 74:1061 D 2 '15

Ornamental tile in cornice work. *Il Bldg Age* 37:39-41 Jo '15

Corona

Comparison of calculated and measured corona loss curves. W. W. Peck, Jr. *Am Inst M E Pro* 34:169-76 F '15; Discussion. 34:2620-1 N '15

Electric strength of air. J. I. Whitehead. *Am Inst M E Pro* 34:853-65 My '15; Discussion. 34:2997-3005 D '15

Investigation of the corona in air at continuous potentials and at pressures lower than atmospheric; abstract. D. MacKenzie. *Elec W* 66:1303 My 22 '15

Law of corona and spark-over in oil. F. W. Peck, Jr. *Gen Elec* 12:821-7 Ag '15

Corporation law

Corporations and trading associations in France. A. J. Wolfe and M. M. Borchard. *Il S Bur For & Dom Com* 97:69-84 '15

See also Commercial law; Municipal law; Public service corporations—Law; Railroad law; Trusts, industrial

Corporation schools

Apprentice school. A. W. Soderberg. *Iron Tr* 56:1169-70 Jo 10 '15

Cleveland-Cliffs mining school. *Iron Age* 96:978 O 28 '15

Individual and corporate development of industry. C. P. Steinmetz. *Gen Elec* 12:813-16 Ag '15

Modern railway school. *Il plans Elec Ry J* 46:844-53 Ag 28 '15

Teaching the business to the employee. *Elec W* 66:291-3 Ag 7 '15

Training men for the central-station industry. *Il Elec W* 66:282-4, 1142-4 O 30, N 20 '15

Works apprentice school discontinued. *Iron Age* 95:1234-5 Je 17 '15

Works school for salesmen. C. R. Sturtevant. *Iron Age* 95:1853 Je 17 '15

Corporation schools, National association of. See National association of corporation schools**Corporations**

Cumulative voting. *Elec Ry J* 46:870-1 O 23 '15

Individual and corporate development of industry. C. P. Steinmetz. *Gen Elec* 12:813-16 Ag '15

Small corporation—a pitfall. J. R. Smith. *Eng M* 49:672-8 Ag '15

See also Franchises; Holding companies; Public service corporations

Accounting

Bonus capital stock and bonds. W. F. Hilton. *J Account* 19:425-36 Je '15

- Corporations—Accounting—Continued**
 Issuance of securities in New York. J
 Account 19:212-15 Mr '15
- Finance**
- Overissuing capital stock. J Account 19:62-5
 Ja '15
- Corpulence**
 Machine that takes off fat. II Sci Am 112:
 366 Ap 17 '15
- Correspondence schools and courses**
 Teaching foundry practice by mail. II Foundry
 43:65-8 F '15
- Corrosion, Electrolytic.** See Electrolytic corrosion
- Corrosion and anti-corrosives**
 Acid-resisting alloy to replace platinum in the
 construction of a bomb calorimeter. S. W.
 Parr. II Am Chem Soc J 37:2515-22 N '15
 Apparatus for making accelerated compara-
 tive durability tests of small pipe. II Eng &
 Contr 43:582 Je 30 '15; Eng N 74:35 J1 '15
 Care and maintenance of gas holders. J. I.
 Braine. II Am Gas Inst Pro 9:pt 1, 764-95
 '14; Same cond. Am Gas Light J 101:355-9 D
 7 '14
 Chemical principles in the protection of iron
 against rust. Automobile 33:312-1. My 8 '15
 Corrosibility of cast iron and steel. J. N.
 Friend and C. W. Marshall. Iron Tr R 56:
 1114-15 My 20 '15
 Corrosion of condenser tubes. E. Bate. Gen
 Elec R 17:882-90 N '14; Abstract. Met &
 Chem Eng 12:656-7 O '14; Abstract. Ind Eng
 14:413-14 O '14
 Corrosion of condenser tubes. Power 41:355 Mr
 9 '15
 Corrosion of iron. L. C. Wilson. Eng M 48:517-
 23, 607-74, 849-58; 49:58-66, 202-10 Ja-My '15
 Corrosion of iron and steel pipe. W. A. Lunk-
 ley, J. B. Noble. Power 41:584-5 Ap 27 '15
 Corrosion of iron pans in zinc melting. Eng &
 Min J 100:478 N 18 '15
 Corrosion of pure iron and steels used by
 U. S. reclamation service. Eng N 74:78 J1 8
 '15
 Corrosion of steel and cast iron compared.
 R. C. McWane and H. Y. Carmon. II Foundry
 43:467-9 N '15
 Corrosion of steel wharves at Kowloon: ab-
 stract. M. H. Mills. diags Am Soc M E J 37:
 123-4 F '15
 Corrosion problem before the American iron
 and steel institute. Met & Chem Eng 13:420
 J1 '15
 Deterioration of steel bridges over railway
 tracks at Buffalo. R. J. Holdpath. II diags
 Eng N 73:1144-7 Je 10 '15
 Developing an acid-resisting alloy. S. W.
 Parr. II Iron Tr R 57:991-1. N 18 '15; Same.
 Metal Ind n s 13:467-8 N '15; Abstract. Am
 Soc M E J 37:856-7 N '15; Abstract. Met &
 Chem Eng 13:978 D 15 '15
 Effect of various elements in steel on its
 resistance to corrosion. A. H. Cushman. Eng
 & Contr 44:84-5 J1 28 '15
 Effects of pickling upon the corrosion of iron.
 H. A. Richardson. Met & Chem Eng 13:759
 D '14; Same. Iron Age 95:621 Mr 18 '15
 External corrosion of cast iron pipe: abstracts.
 M. R. Pugh. Munic J 37:424-5 N 24 '14; Am
 Soc M E J 36:1019 O '14; Eng & Contr 42:
 277-81 O 21 '14; Am Gas Light J 103:65-70
 Ag 2 '15
 Influence of different elements on the corro-
 sion of iron. L. C. Wilson. Eng M 50:78-83
 O '15
 Old steel of razed building examined for rust.
 Eng Rec 72:223-4 Ag 21 '15
 Protection of metal structures: with discus-
 sion F. H. Fay. II diags Eng Soc W Pa 31:
 115-23 Mr '15
- Protection of metals against electrolysis,**
 weathering, chemical fumes, etc. M. Toch.
 II Shiley J 30:54-5 N '15
- Recent progress in corrosion resistance.** D. M.
 Buck. II Iron Age 95:1231-4 Je 3 '15; Same.
 Eng & Contr 43:574-6 Je 30 '15; Same. Iron
 Tr R 56:1155-8 Je 10 '15; Same. Metal Work
 33:879-82 Je 18 '15; Excerpt (Copper steel
 for resisting corrosion) Eng M 49:762-3 Ag
 '15; Discussion. A. S. Cushman and others.
 Iron Age 95:1234-9 Je 8 '15; Same. Iron Tr R
 56:1159-62+ Je 10 '15; Same abr. Metal Work
 33:882-3 Je 18 '15
- Removal of rust by chemicals.** Eng & Min J
 100:73-4 J1 10 '15
 Rust removal by chemical reagents. J. N.
 Friend and C. W. Marshall. Iron Tr R 56:
 1023-4 My 20 '15
 Why iron and steel corrodes. J. Aston. Iron
 Tr R 56:423-6 F 25 '15
 Wrought-iron or steel pipes? L. C. Wilson.
 Eng M 50:247-54 N '15
 See also Boilers—Corrosion; Electrodes;
 Electrolytic corrosion; Metal protection;
 Paint; Waterproofing
- Bibliography**
- Bibliography of metal corrosion and protec-
 tion. Eng Soc W Pa 31:193-222 Mr '15
- Corrugated iron**
 Corrugated pipe used successfully for cul-
 verts. II Eng Rec 71:558 My 1 '15
 Service secured from corrugated iron culverts.
 II Ry Age 58:316-18 F 10 '15
- Corte-scope**
 Machinery photograph display device. II Iron
 Age 95:1205 Ja 10 '15
- Corundum**
 See also Abrasives.
- Cosmology**
 Modern ideas on the end of the world. G. Jau-
 mann. Sci Am 8 79:178-9 Mr 20 '15
- Cost**
 Analysis of elements of cost of a complete
 plant unit. W. J. Huddle. Eng & Contr 44:
 139-40 Ag 25 '15
 See also Prices; also subdivision Cost un-
 der names of subjects
- Cost accounting**
 Accounting for depreciation. J. R. Cravath.
 Elec W 65:213-14 Ja 23 '15
 Accounting system for roofing business. E. B.
 Bourlier. Metal Work 33:39-42 Ja 1 '15
 Accounts for material on engineering con-
 struction. L. H. Allen. J Account 19:352-8
 My '15
 All-in costs. M. T. Gilbourne. Engineer 120:
 101 J1 30 '15
 American foundrymen's association committee
 recommends universal cost keeping system.
 Foundry 43:451-4 N '15
 Apportioning indirect production expense.
 A. M. Burroughs. Metal Work 33:281-6, 316-
 18 F 19-25 '15
 Bookkeeping and cost-keeping for electrical
 contractors. L. W. Moxey, Jr. Elec W 66:
 1153-5 N 20 '15
 Buildings-factor costs. H. L. Green. Eng M
 48:407-10 J1 '14; Same. Eng & Contr 43:101-2
 F 3 '15
 Business methods for the plumber and fitter.
 W. A. Fink. Dom Eng 71:185-6 My 15 '15
 Contractors' cost-keeping system. Elec W 65:
 797-9 Mr 27 '15
 Cost accounting for fertilizer manufacturers.
 R. C. Holser. J Account 19:166-81 Mr '15
 Cost accounting in plumbing establishments.
 H. G. Helstrum. Metal Work 33:53-4 Ja 1 '15
 Cost accounting in sheet metal work. R. M.
 Mackey. Metal Work 33:314-15 N 26 '15
 Cost accounting in the main works of the
 Westinghouse electric & manufacturing
 company. G. D. Piper. Elec Ry J 44:1337-40
 D 18 '14
 Cost accounting in the railroad repair shop.
 E. Cordell. Eng M 49:211-17 My '15
 Cost accounting on construction work, with a
 description of the system used by the Aber-
 thaw construction company. L. H. Allen.
 forms Boston Soc C E J 1:153-77 Mr '14;
 Discussion. 1:456-79 O '14
- Cost and method.** R. Daniels. See monthly
 numbers of the Inland printer
- Cost keeping in the brass foundry.** C. O.
 Skeeper. Metal Ind n s 12:487-9 D '14
- Cost keeping system for work performed by
 municipal forces of the Philadelphia bureau
 of highways.** Eng & Contr 43:292-4 Mr 31
 '15; Same cond. Eng Rec 71:360-1 Mr 30 '15
- Cost keeping system Oregon state highway
 commission.** M. F. Ayres. Eng & Contr 44:
 349-50 N 3 '15
- Cost of breakage and leakage.** S. Walton. J
 Account 19:149-52 F '15

Cost accounting—Continued

- Cost of doing business. G. W. Hill. Dom Eng 71:157, 306-7 My 8, Je 12 '15
- Cost of producing farm crops. O. R. Martin. J Account 19:245-59 Ap '15
- Cost system for contractor or jobber. Metal Work 83:599-600+ Ap 23 '15
- Cost system of Denver combination shop. J. R. Elliott. Metal Work 84:274-8 Ag 27 '15
- Cost system of Denver sheet metal shop. Metal Work 84:176-6+ Ag 6 '15
- Cost system of Michigan sheet metal shop. Metal Work 83:802-4 Jo 4 '15
- Cutting the costs of keeping a cost system. A. M. Burroughs. Metal Work 83:763 My 28 '15
- Depreciation, interest and manufacturing cost. W. C. Wright. J Account 20:361-4 N '15
- Development of a unit cost system. N. Cunliff. II Assn Eng Soc J 53:74-85 Ag '14; Same. Eng & Contr 42:374-8 O 21 '14; Discussion. Assn Eng Soc J 53:85-101, 165-70 Ag-S '14
- Do you estimate or guess in bidding? E. Stern. Metal Work 83:44-5 Ja 1 '15
- Doing business on low overhead expense; W. B. Perry electric company, of Brooklyn. Elec W 65:544-6 F 27 '15
- Estimating the cost of wool goods in English mills. Textile World 49:419-24 Ji '15
- Factory cost accounting. M. McKune. Metal Ind n s 13:286-7 Ji '15
- Figuring cost on labor percentage basis. Metal Work 83:12-13 Ja 1 '15
- Final disposition of expense figures. A. M. Burroughs. Metal Work 83:471-2 Mr 26 '15
- Finding costs in the steel foundry. G. Muntz. Iron Tr R 57:482-4 S 9 '15
- Guide posts in the contracting business. J. C. Walker. Metal Work 83:607-9 Ap 23 '15
- Handling material and perpetual inventory. A. M. Burroughs. Metal Work 83:153-4 Ja 22 '15
- How the contractor can know where he stands. L. W. Moxey, Jr. Elec W 66:870-3 O 16 '15
- How to estimate cost and keep accounts. J. P. Coghill. Elec W 66:818 O 9 '15
- How to use statistics in management. F. G. Coburn. Eng M 49:720-3 Ag '15
- Jobbing machine shop cost system. II Iron Age 96:863-5 O 14 '15
- Keeping a line on daily expense. A. J. Gibney. Ry R 57:468-70 O 9 '15
- Keeping accurate daily and total cost sheets will pay the contractor. C. B. Montgomery. Eng Rec 71:535-6 Ap 24 '15
- Keeping cost in a job planing shop. II. J. Tor Doest. Metal Ind n s 13:189 My '15
- Labor costs in interior construction. L. W. Moxey, Jr. Elec W 66:924-7 O 23 '15
- Machine accounting in a pump works; Hol-lerith tabulating system. S. G. Keon. II Iron Age 96:408-11 Ag 10 '15
- Making the cost department worth while. W. Kent. Ind Eng 14:393-5 O '14
- Manufacturing expense distribution. N. T. Ficker. Eng M 49:321-6, 553-6, 690-7, 862-71; 50:58-64, 254-61, 390-400 Jo-J '15
- Measurement of efficiency. II. L. Gantt. Iron Tr R 55:1131-3 D 17 '14; Same. Ind Eng 14:463-5 D '14; Same. Iron Age 94:1320-1 D 3 '14; Same. Automobile 31:1104-5 D 17 '14; Same cond. Ry Age (Mech ed) 89:249-51 My '15; Same cond. Metal Work 83:725-6 My 21 '15; Abstract. Eng M 48:577-80 Ja '15; Abstract; with discussion. Am Soc M 19 J 37:11-13 Ja '15
- 1914 operations of the Philadelphia bureau of highways and street cleaning. II Good Roads n s 9:131-5 Ap 3 '15
- Overburdening the overhead expense. H. Whitehead. Dom Eng 72:317-18 S 11 '15
- Practical cost system for combination shop. Metal Work 84:306, 340+, 361+ S 3-17 '15
- Relation between production and costs. H. L. Gantt. Am Soc M 19 J 37:466-8 Ag '15; Same. Am Gas Light J 108:54-5 Ji 26 '15; Same. Iron Age 96:16-18 Ji 1 '15; Same. Iron Tr R 57:267-8+ Ag 5 '15; Same. Mach 21:1000-2 Ag '15; Same. Textile World 49:510-13 Ag '15; Discussion. Am Soc M 19 J 37:468-75 Ag '15; Abstract of discussion. Iron Age 96:24-5 Ji 1 '15
- Road-maintenance costkeeping in Pennsylvania. Eng N 74:250-3 Ag 5 '15
- Uniform basis for figuring foundry costs. Iron Age 96:1118-21 N 11 '15
- Unit construction costs from the new smelter of the Arizona copper co., ltd. E. H. Jones. diags Am Inst Min E Bul 91:1497-1640 Ji '14; Abstract. Eng & Contr 42:560-3 D 16 '14
- Unit costs for day before obtained on this job by 8:30 A. M. Eng Rec 71:785-6 Je 19 '15
- Value of published costs. W. K. Palmer. Elec Ry J 45:845-6 My 1 '15
- What is the cost per thousand? B. Daniels. Inland Ptr 54:393-6 D '14
- See also Accounting; Overhead expense
- Costume**
See also Automobile costumes; Hosiery
- Cottages**
Attractive English cottage. diag plan Bldg Age 37:59 Ap '15
- Cottage of the semi-bungalow type. II diags plans Bldg Age 37:49-52 Ja '15
- Engineer's concrete block cottage—built in Riverside, Cal., for \$3,000. R. L. Newman. II plans Concrete Cem 6:20-1 Ja '15
- Five-room stucco finished cottage. II plans Bldg Age 37:42-5 O '15
- Low cost cottage with shingle roof intended for erection on a lot having forty feet frontage. II diags plans Bldg Age 37:42-5 S '15
- New Jersey cottage of neat design. II plans Bldg Age 37:27-9 Ap '15
- Suburban house with tux-tilo walls. II diags plans Bldg Age 37:42-5 Ap '15
- Tile cottage with shingle roof. C. M. Anderson. II plans Bldg Age 37:19-24 O '15
- See also Architecture, Domestic; Bungalows; Country houses
- Cotton**
Chemical engineering in nitrocellulose manufacture. H. J. Stadman. Met & Chem Eng 13:361-6 Je '15
- Chinese cotton industry. R. A. Morgan. Textile World 50:187-9 N '15
- Further results of moisture tests on American cotton at the Havre conditioning house. II. B. Douty. Textile World 49:230-2 My '15
- Methods of determining length of cotton staple and illustrations of their application. N. A. Cobb. Textile World 49:613-18 S '15
- Moisture in cotton. Textile World 48:405-6 Ja '15
- Use of cotton for the production of explosives. Sci Am S 80:271 O 23 '15
- See also Cotton mills; Dyes and dyeing; Textile industry and fabrics
- Cotton, Absorbent**
Machines for preparing absorbent cotton. II Textile World 48:350-1 D '14
- Preparing absorbent cotton. II Textile World 48:533-5 F '15
- Cotton, Absorbent, Substitutes for**
Continental substitutes for absorbent cotton. Textile World 50:74-5 O '15
- Cotton as contraband of war**
Cotton as contraband. Textile World 49:587-9 S '15
- Greatest technical blunder of the war. Sci Am 113:176 Ag 28 '15
- War significance of cotton. Sci Am 113:38 Ji 10 '15
- Cotton carding**
Experience in a cotton card room. Textile World 49:561-2 S '15
- Cotton fabrics**
Breaking strength of cotton cloth. D. E. Douty. Textile World 49:171-2 My '15
- Cotton fabrics for aeroplanes and dirigibles. Textile World 49:325 Fe '15
- Faulty fabrics as viewed by the laundryman. W. H. Johnstone. Sci Am S 80:359 D 4 '15
- Novelties in cotton fabrics. II Textile World 49:76-7, 342-6 Ap, Jo '15
- Putting up goods to suit buyers. Textile World 48:630-1 Mr '15
- Cotton fibers**
Length of the cotton staple. Textile World 50:155-6 N '15
- Cotton handling**
Bale conveyor in a cotton warehouse at Galveston, Tex. J. R. Fordyce. II Eng N 73:718-19 Ap 15 '15

- Cotton handling—Continued**
 Concrete warehouses and terminal plant at New Orleans will cover 100 acres. *Il plan Eng Rec 71:402-3 Mr 27 '15*
 Cotton warehouse and terminal at New Orleans. *diag Eng N 73:1217 Ju 24 '15*
 Handling cotton with electric freight trucks at Galveston. *Il Int Marine Eng 20:103-4 Mr '15*
- Cotton machinery**
 Ball bearings for cotton mills. *Il A. Allen. Il Textile World 49:631-8 S '15*
 Electricity in cotton gins. *J. H. Moseley. Il Elec R & W Elec'n 67:139-45 J 24 '15*
 Machines for preparing absorbent cotton. *Il Textile World 48:350-1 D '14*
 Preparing absorbent cotton. *Il Textile World 48:533-5 P '15*
- Cotton manufacture**
 Cotton manufacturing in China. *R. A. Morgan. Textile World 49:412-18; 50:85-8 J 1, O '15*
 Utilization of cotton waste by German and Austrian methods. *E. Nasmith. Textile World 49:sup251+ My '15*
- Cotton manufacturers, National association of.**
 See National association of cotton manufacturers
- Cotton mills**
 Cotton spinning and weaving mill. *diag Textile World 49:436-9 J 1 '15*
 Electricity in cotton duck mills. *Il Elec R & W Elec'n 66:673-9 Ap 10 '15*
 General business efficiency in connection with cotton mill management. *J. T. Rose. Textile World 49:190-3 My '15*
 Humanitarian millwork in Greensboro, N. C. *G. Dawe. Il Am Ind 15:16-17 My '15*
 Meeting of the Southern textile association; president's address. *W. M. Sherard. Textile World 50:162-4 N '15*
 Piece rate system for wages in cotton mills. *O. Wilson. Textile World 49:213-17 My '15*
 Prevention of accidents in cotton mills. *J. Culder. Textile World 49:622-4 S '15*
 Salem cotton mill to use central-station power. *Il Elec R & W Elec'n 67:511 S 18 '15*
 Uses for concrete construction by cotton manufacturers. *L. C. Winsor. Textile World 49:288-91 My '15*
- Cotton pulp**
 Pulp from cotton stalks. *Sci Am 113:482 D 4 '15*
- Cotton sizing**
 Sizing of warp yarns. *C. C. Moore. Textile World 49:323-5 Ju '15*
- Cotton spinning**
 Apparatus for steaming cotton roving. *diag Textile World 49:97 Ap '15*
 Machinery required for spinning cotton yarn. *Textile World 49:898-9 S '15*
 Spinning fine yarn. *Textile World 48:504-5 P '15*
- Cotton stalks.** See Cotton pulp
- Cotton tariff**
 Regulating temperature and humidity in appraising cotton goods. *Il diag plan Textile World 48:380-2 Ja '15*
 Science and the tariff; apparatus employed in determining customs duties. *W. R. Pickrell. Il Sci Am S 79:199 Mr 27 '15*
- Cotton trade**
 Address to National association of cotton manufacturers. *A. G. Duncan. Textile World 49:199-202 My '15*
 Address to the members of the American cotton manufacturers association. *T. I. Hickman. Textile World 49:182-5 My '15*
 Cotton reserves. *Textile World 48:277-8 D '14*
 Cotton textiles in Argentina. *Textile World 49:318-21, 414-17 Je-J 1 '15*
 Italian cotton industry since the European war. *R. Sansone. Textile World 49:501-3 Ag '15*
 Limitations on association activities in developing export trade. *P. T. Cherington. Textile World 49:217-19 My '15*
 Marketing cotton goods in India. *Textile World 48:374-8 Ja '15*
 Scientific solution of the world's cotton problem. *L. Johnson. Sci Am 113:297-4 O 2 '15*
- Trade abuses and a remedy; need of organization. *K. R. Hooker. Textile World 49:193-7 My '15*
- Cotton waste**
 Cotton waste bleaching. *Il Textile World 48:326-7 D '14*
 Utilization of cotton waste by German and Austrian methods. *E. Nasmith. Textile World 49:sup251+ My '15*
- Cotton weaving**
 Scientific management in a cotton weave room. *Textile World 49:526-8 Ag '15*
- Cottonseed**
 Cottonseed industry in foreign countries. *T. H. Norton. Il U S Bur For & Com Com 99:1-73 '15*
 Heating of cottonseed—its causes and prevention. *W. H. R. Burrow. J Ind & Eng Chem 7:709-12 Ag '15*
 Nitrogen and fat in short staple cottonseed. *C. A. Wells and P. H. Smith. J Ind & Eng Chem 7:217 Mr '15*
 Pressure of cottonseed. *W. M. Millot. Eng N 74:291-2 N 18 '15*
- Cottonseed meal**
 Determination of lint in cottonseed-meal. *Il N. Brickett. J Ind & Eng Chem 7:611-12 J 1 '15*
 Official method for determining crude fiber as applied to cottonseed meal. *C. K. Francis. Il J Ind & Eng Chem 7:676-80 Ag '15*
 Preparation of raffinose. *C. S. Hudson and T. S. Harding. Am Chem Soc J 36:2110-14 O '14*
- Cottonseed oil**
 Contributions of the chemist to the cottonseed oil industry. *D. Wesson. J Ind & Eng Chem 7:276-7 Ap '15; Abstract. Met & Chem Eng 13:283-4 My '15*
- Cottonseed oil mills**
 Electric drive in a cottonseed-oil mill. *J. W. Ruff. Elec W 66:978-9 O 30 '15*
- Cottrell, Frederick Gardner, 1877.**
 Dinner to Frederick G. Cottrell. *por Met & Chem Eng 13:31-4 P '15*
- Cottrell process.** See Electric precipitation
- Coulometer.** See Voltameters
- Coumarin**
 Modification of Wiegmann's method for the detection of small amounts of coumarin, particularly in fœtuous vanilla extracts. *J. R. Dean. J Ind & Eng Chem 7:519 Je '15*
- Council Bluffs, Iowa**
 Water supply
 Council Bluffs waterworks regeneration reverses slump in population curve. *Il diag Eng Rec 72:286-7 S 4 '15*
- Council Grove, Kansas**
 Water supply
 Water supply treatment at Council Grove. *I. L. Tribus. Il diag Am Water Works Assn J 2:83-102 Mr '15*
- Country clubs**
 Country-club houses. *Il. D. Eberlein. Il plans Arch Rec 38:208-27 Ag '15*
- Country houses**
 Architect's country house; residence of Electus Litchfield, New Canaan, Conn. *Il. T. Bostomley. Il diag Arch Rec 37:48-63 Ja '15*
 Country house architecture in the East. *E. D. Litchfield. Il plans Arch Rec 38:462-88 O '15*
 Country house architecture in the middle West. *P. B. Wight. Il plans Arch Rec 38:385-421 O '15*
 Country house architecture on the Pacific coast. *L. C. Mullgardt. Il plans Arch Rec 38:423-51 O '15*
 Country house with clapboard walls. *Il diag plans Bldg Age 37:43-5 Ja '15*
 Electricity on a country estate. *Il Elec W 66:476-8 Ag 28 '15*
 Illumination of the suburban house; the use of electricity or acetylene. *H. L. Alt. Il diag Brickb 24:248-53 O '15*
 Modern version of the early Pennsylvania country house. *C. M. Price. Il plans Arch Rec 37:76-81 Ja '15*
 Residence of Charles S. Walton, Esq. *R. D. Murray. Il plans Arch Rec 38:501-23 N '15*

Country houses—(Continued)

Seashore cottages at Nantucket. *Il Arch Rec* 37:479-80 My '15

Typical country plumbing installations. *Il plans Bldg Age* 37:57-60 J1; 61-4 Ag '15

See also Bungalows; Cottages; Farm buildings; Farmhouses

Couplers. See Car couplings

Couplings

Bull dog shaft couplings. *Il Power* 42:55 J1 13 '15

Flexible coupling. *Il diag Engineer* 119:608 Jo 18 '15

Flexible couplings. *Il: Davey. diag Engineer* 120:107 J1 30 '15

Lining up small turbine sets. *J. H. Hurley. diag Power* 41:714-15 My 25 '15

Quarter-turn rod couplings. *Il diag Power* 41:117 Ja 26 '15

See also Car couplings; Hose couplings; Joints

Court houses

Delaware county court house; views and plans. *Arch & Bldg* 47:330b-335 S '15

Court rooms

Relation of light to the proof of documents; proper illumination of courts necessary to insure justice. *A. S. Osborn. Sci Am* 8 78:250-1 O 17 '14; Same. *Illum Eng Soc* 9:998-1006; Discussion. 9:1006-10 no 9 '14

Courtesy

Courteous service. *Il: H. Mullan. Elec R & W Elec'n* 67:227-8 Ag 7 '15

Courtesy in business offices. *Iron Age* 95:195 Ja 21 '15

Courtesy in timekeeping. *N. Hutchings. Iron Age* 95:581 S 9 '15

Importance of personal touch. *N. Hutchings. Iron Tr R* 57:751 O 14 '15

Making courtesy work for you. *Ironless Age* 34:313-14 Ag 26 '14

Personal element in the plumbing business. *G. D. Crain. Jr. Dom Eng* 73:75-6 O 16 '15

Covellite

Occurrence of covellite at Butte, Mont. *A. P. Thompson. Il Am Inst Min* 9 Bul 100:646-77 Ap '15; Discussion. 108:2464-71 D '15

Sulphides of copper. *W. Pownall, D. T. Allen and H. L. Merwin. Econ Geol* 10:527-32 S '15

Cover pages

Borders about cover-designs. *J. L. Frazier. Inland Tr* 55:69-72 Ap '15

Crane hooks

Crane hooks for lifting sheet metal. *diag Mach* 22:230 N '15

Cranes, derricks, etc.

Builder's mast crane which proved a success. *Il Eng N* 73:938 My 13 '15

Cranes for the machine shop and foundry. *H. M. Lane. diag Iron Age* 96:246-8 J1 29 '15

Cylinder-head davit crane. *F. W. Salmon. diag Power* 42:481-2 O 5 '15

Derrick mounted on traveling cranes for mill erection at Thane, Alaska. *Il Eng N* 73:127 Ja 21 '15

Derrick-trolley carries dirt beyond caving banks. *M. A. Millitt. diag Eng Rec* 72:674 N 27 '15

Efficient traveling derrick. *Il diag Eng N* 74:508 S 9 '15

Electric crane facilities unloading wagons. *Il Elec W* 66:147-8 J1 17 '15

Electric hatchway control gear for cranes. *Il diag Engineer* 119:476-7 My 14 '15

Electric steam tunnel crane. *Il Eng & Contr* 48:184 F 24 '15; *Elec Rty J* 45:427-8 F 27 '15

Iron Age 95:451 F 25 '15; *Ity Age* 58:369-70 F 28 '15; *Ry R* 56:280-1 F 27 '15; *Sci Am* 8 79:285 My 1 '15

Electrical construction in machine shops and foundries. *N. G. Meade. diag Elec R & W Elec'n* 67:16-18 J1 3 '15

Erection traveler, new Quebec bridge. *Il: P. Borden. Il plans Eng N* 73:417-22 Mr 4 '15

Giant German and Austrian cranes required in navy yards for placing turrets, guns and machinery. *F. C. Perkins. Il Sci Am* 8 80:145, 148 S 4 '15

Handling materials in manufacturing plants. *Il L. Streeter. Il diag Eng M* 50:222-46, 401-28 N-D '15

Laying rail with the help of locomotive cranes. *Il Rty Age* 59:353-4 Ag 20 '15

Light traveler cheapens sheeting of trench across river. *W. E. Brotherton. plan Eng Rec* 71:439 Ap 3 '15

Locomotive crane of heavy construction. *Il Iron Age* 94:1488 D 31 '14

Locomotive cranes; committee report. *Il Rty R* 57:519-23 O 23 '15; Same cond. *Rty Age* 59:753-4 O 22 '15

Locomotive cranes for Franco. *Il Iron Age* 96:980-1 O 28 '15

Long 15-ton guy derrick folds into compact form. *diag Eng Rec* 72:532-3 O 30 '15

Long span coal-handling gantry crane. *Il Iron Age* 96:236 J1 29 '15

Machinery hall cranes, Panama exposition. *Il Iron Age* 91:1333 D 10 '14

New 150-ton revolving floating crane for Norfolk. *A. F. Case. diag Eng N* 73:1164-5 Je 17 '15; Abstract. *Eng M* 49:138 Ag '15

Panama crane contract. *F. H. Cooke. Il diag Eng N* 73:913-17 My 13 '15

Pillar crane for machine tool work. *diag Ry Age (Mech ed)* 89:360 J1 '15

Portable derrick for handling transformers. *Il Elec W* 66:1091-3 N 12 '15

Portable derrick for installation on motor trucks. *Concrete Cem* 6:108 F '15

Proposed gantry crane for car repair yards. *W. E. Johnston. plant Rty Age (Mech ed)* 89:304 Jo '15

Special type of slag handling crane. *Il Iron Age* 95:930 Ap 20 '15

Standardization of chilled iron crane wheels; abstracts. *F. K. Vial. diag Am Soc M* 19 J 37:147-51 Mr '15; *Iron Tr R* 55:1083-7+ D 10 '14

Standardization of crane motors. *Ry Age (Mech ed)* 89:585 N '15

Truction wheel locomotive crane. *Il Eng & Contr* 44:55 J1 21 '15

Use of locomotive cranes and some data on their cost of operation. *Eng & Contr* 44:14-16 N 24 '15

Use of wrecking crane saved money on small job. *Il: C. Hardman. Il Eng Rec* 72:366 S 18 '15

Uses of the locomotive crane in electric railway work. *G. J. Kuhrt. Il Elec Rty J* 46:877-8 O 23 '15

Uses of the locomotive crane in railway service. *Il Rty Age* 59:110-15 J1 16 '15

See also Crane hooks; Hoisting machinery

Accidents

Crane and chain accidents: abstract. *Ind Eng* 14:411-32 O '14

Making the operation of the overhead crane safe. *Ind Eng* 14:434-8 N '14

Failures

Failure of Panama crane Ajax. *F. H. Cooke. Il diag Eng N* 73:918-23 My 13 '15; Abstract. *Eng M* 49:584-7 J1 '15

Failure of the great German crane of the Panama canal. *Eng N* 73:947-8 My 13 '15

How a German crane failed. *Il Iron Tr R* 56:274-6 F 4 '15

Stresses in the Panama canal cranes. *Eng N* 74:86-8 J1 8 '15

Safety devices

Derrick dangers. *Eng & Min J* 99:904 My 22 '15

Fifty safety rules for the operation of cranes. *Foundry* 43:16-17 Ja '15; Same. *Eng & Min J* 99:779-80 My 1 '15

Making the operation of the overhead crane safe. *Ind Eng* 14:434-8 N '14

Rules for crannemen. *Am Ind* 16:28-9 Ag '15

Safeguarding cranes. *Iron Age* 95:403 F 18 '15

Safeguarding of cranes. *Il Am Ind* 16:suppl-4 N '15

Safety in crane chains. *M. B. Morgan. Iron Age* 96:1116-17 N 11 '15

Crankpins

Crankpin failure. *F. F. Jorgensen. Il diag Power* 41:720-1 My 25 '15

Crankpin troubles. *C. W. Haynes. Power* 41:120-1 Ja 26 '15

Crankshafts

- Alignment of outer bearings. J. Reid. *Il Power* 42:728-7 N 23 '15
 Broken crankshafts. A. V. Clarke. *diag Power* 42:385 N 14 '15
 Crankshaft for two-cycle internal combustion engines. D. O. Barrett. *Mach* 21:118-20 O '14; *Abstract. Ind Eng* 14:441 N '14
 Ford methods and the Ford shops. H. L. Arnold. *Il Eng M* 48:704-11 F '15
 Problems of eight-cylinder engine design. O. M. Burkhardt. *diag Horseless Age* 36:276-8 S 15 '15
 Types of automobile crankshaft lathes. J. C. Spence. *Mach* 21:569 Mr '15
 Types of automobile crankshaft lathes: universal machines for the crankshaft manufacturer and special equipments for the automobile builder. W. O. Strauss. *Il diag Mach* 21:400-3 Ja '15

Craven, Alfred, 1846-

- Sketch. *por Eng M* 50:214-15 N '15

Cream of tartar

- Manufacture of cream tartar. O. Best. *Met & Chem Eng* 13:613-17 S 15 '15

Creameries

- Summary of the results of experiments on the purification of creamery refuse and their application. H. R. Crohurst and A. D. Weston. *Eng & Contr* 44:7-9 JI 7 '15

Creatinine

- Observations of the excretion of creatinine by women. M. Hull. *Am Chem Soc J* 36:2140-51 O '14

Credit

- Association and the slow pay customer. R. J. Buckley. *Metal Work* 82:746 D 4 '14
 Banking and credit in Argentina, Brazil, Chile, and Peru. R. N. Hurley. *U S Bur For & Com Com* 90:1-73 '14
 Business hints for the dealer and contractor. (I. D.) Chulm, Jr. *Mech R & W Mee'n* 67:476-8 N 11 '15
 Credit granting. C. M. Meek. *J Account* 18:427-34 D '14
 Credit problems of tool builders. *Iron Tr R* 56:647 Ap 1 '15
 Credit systems for plumbers and fitters. W. A. Pink. *Dom Eng* 73:9-10, 169-70, 297 O 2, N 6, D 4 '15
 Creditor who stands for his rights. J. J. Buckley. *Metal Work* 84:823 N 13 '15
 Credits, collections and cash discounts. W. H. Vliett. *Mech R & W Mee'n* 67:108-7 JI 17 '15
 Credits from the viewpoint of a certified public accountant. F. H. Hurdman. *J Account* 18:435-54 D '14
 Established credit prevents failures. F. R. Cline. *Metal Work* 83:436-7 Mr '15
 Financial statements as a basis of credit. J. E. Masters. *J Account* 19:334-43 My '15
 Putting collections on a banking basis. T. M. Cadey. *Metal Work* 84:548-9 O 29 '15
 Reciprocal credit system for supply houses. J. B. Chambers. *Metal Work* 84:428-7+ O 1 '15

See also Banks and banking; Trade acceptances

Cresote

- Application of the Davis spot test in the preliminary examination of cresotes. H. Cloukey. *Il J Ind & Eng Chem* 7:923-4 N '15
 Carbolinum and cresote. H. H. Alcock. *Am Gas Light J* 103:58-9, 125 JI 26, Ag 23 '15
 Carbolinum and cresote. S. R. Church. *Am Gas Light J* 103:108 Ag 16 '15
 Effect of the war on timber preservation. *Ry Age* 58:843-5 Ap 16 '15
 Mixing tar with cresote. F. C. Reilly. *Ry R* 58:242-7 F 20 '15
 Only cresote properly applied withstands teredo. *Eng Rec* 71:209-10 F 13 '15
 Specification for a coal-tar cresote solution. H. Von Schrenk and A. L. Kammerer. *Eng Rec* 71:144 Ja 30 '15; *Same. Ry Age* 58:160-1 Ja 22 '15
 Specification for a cresote-coal tar solution. *Eng Rec* 71:398 Mr 27 '15
 Tests of wood preservatives. H. F. Weiss and C. H. Teesdale. *Il U S Agric Bul* 145:1-20 '15

- Toxicity of coal-tar cresote for the xylotrya. L. K. Shackell. *Eng Rec* 71:144 Ja 30 '15
 Toxicity of cresote for marine borer. *Ity Age* 58:159 Ja 22 '15

Cresoting

- Cresoting of cross ties as practiced by American railroads. A. C. Steinmayer. *Il Assn Eng Soc J* 54:110-20 Mr '15
 Effect of steaming process of cresoting on strength of Oregon fir piling; abstracts. H. B. Macfarland. *Eng Rec* 70:487-8 O 31 '14; *Eng & Contr* 42:481-3 N 18 '14; *Summary. Eng N* 72:863 O 29 '14
 How not to waste steam in cresoting plants. A. M. Lockott. *Eng Rec* 71:145 Ja 30 '15
 Tests vs. inspection of treatment of cresoted wood paving blocks. F. W. Cherrington. *Munic Eng* 48:120-1 F '15
See also Wood preservation

Crepe

- Bleaching and finishing crepes. *Textile World* 49:121-2 Ap '15

Cresols

- Preparation of some new substituted cresols. A. J. Hill and L. E. Graf. *Am Chem Soc J* 37:1839-46 Ar '15

Cribs

- Shall for Wilson avenue crib floated to place. *Il Eng Rec* 72:514 O 23 '15

Cribs, Concrete

- Concrete crib with precast members. *diag. Eng N* 73:905 My 6 '15
 Concrete cribs used successfully in dock construction at Victoria. *Il diag plans Eng Rec* 72:165-7 Ag 7 '15
 Concrete units for crib construction. M. D. Campbell. *Il Ry Age* 58:476-7 Mr 12 '15
 Large reinforced-concrete cribs used for Welland ship canal entrance. R. P. Johnson. *Il diag Eng Rec* 71:458-60 Ap 10 '15
 Reinforced-concrete floating caissons for the Welland ship canal. *Il diag Eng N* 73:1122-4 Jo 10 '15

Cribs, Intake

- Intake the Milwaukee waterworks intake crib. H. J. Stoefting. *Il diag Eng N* 73:1058-9 Jo 3 '15
 Rebuilding the Omaha water-intake cribs. G. T. Prince. *Il diag Eng N* 74:342-4 Ar 19 '15

Crime and criminals

See also Convict labor; Identification

Cripples

- Education invalid soldiers. A. Gradonwitz. *Il Sci Am* 113:229 N 11 '15
 Motion picture for the crippled soldier. F. B. Gilbreth. *Il Am Soc M I J* 37:669-73; *Discussion. 37:673-6 D '15*
 Training of the war's maimed, halt and blind. *Il Sci Am* 113:401-4 N 6 '15

Critical point

- Determination of critical points in iron, steel and alloys. *Il diag Met & Chem Eng* 13:643-4 S 15 '15
 Electrical resistance and critical ranges of pure iron. G. K. Burgess and L. N. Keilberg. *U S Bur Stand Bul* 11:457-70 My 10 '15
 Locating the critical range with the Brinell ball tester. J. G. Ayers, Jr. *Mach* 21:252 D '14

Crocker, Mrs. Emmons

- Vice president of the American forestry association. L. Adams-Williams. *por Am For* 21:204-8 Mr '15

Crocker land

- Crocker land expedition. *Sci Am* 111:489 D 12 '14

Cross-ties. See Railroad ties**Croton river**

- Long-term variations in stream flow, Croton and Hudson rivers. R. H. Sargent. *Eng N* 72:1119 D 3 '14

Crucibles

- Device for pouring clean metal from crucibles. *Il Iron Age* 96:418 Ag 19 '15
 Hot drawing crucible furnace. *Il Ind Eng* 14:426 N '14

Crucibles, Graphite

- Crucible business. J. Bartley. *Metal Ind n s* 13:14, 54-5, 107-8 Ja-Mr '15

Crucibles, Platinum

Study of the quality of platinum ware with special reference to losses on heating. G. K. Burgess and P. D. Salo. *diag* U S Bur Stand Bul 12:289-314 N 8 '15; Same cond. J Ind & Eng Chem 7:561-4 J1 '15

Crushed stone

Circular storage system applied to stone crushing plants. *diag* Eng Rec 72:sup53 Ag 7 '15

Crushing

Concentrating plant of the Moose Mountain, Ltd. B. J. Hood. *il diag* Eng & Min J 99:973-8 Je 5 '15

Crushing and grinding. T. D. Mills and M. J. Kuryla. *Met & Chem Eng* 13:721-2 O 15 '15

Crushing plant of the Ohio copper co.'s mill. R. S. Lewis. *il diag* Eng & Min J 99:748-50 Ap 24 '15

Heat developed in crushing. J. Cook. *Eng & Min J* 99:976-8 Je 5 '15; Abstract. *Met & Chem Eng* 13:190 Mr '15

Kick vs. Littinger: an experimental investigation in rock crushing, performed at Purdue university. A. O. Gates. *il diag* Am Inst Min B Bul 105:2023-61 S '15

Laws of Kick and Littinger. C. H. Stanley. *Met & Chem Eng* 13:723-4 D '14

Old storage used for overflow in enlarged rock-crushing plant on Detroit river. *il plan* Eng Rec 72:46-7 J1 10 '15

Quincy dump and grizzlies. L. H. Goodwin. *plan* Eng & Min J 100:103 J1 17 '15

Standardizing rock crushing tests. M. K. Hodgson. *Am Inst Min B Bul* 105:2053-6 S '15

Underground crushing and loading arrangements. A. H. Hall. *diag* Eng & Min J 99:192-3 Ja 23 '15

See also Crushing machinery; Gold milling; Rockhouses; Stamp mills; Tube milling

Crushing machinery

British Portland cement making machinery. *il diag* Engineer 119:175-7, 198-201, 246-9, 302-4, 478-80, 552-4, 626-8; 120:4-6, 195-6 J 12-26, Mr 12, 26, My 14, Jo 4, 26-J1 2, Ag 27 '15

Bronze ball gyratory crusher. *il Munic J* 38:446-7 Ap 1 '15

Cinder crushing and pulverizing mill. *il Iron Age* 96:242 J1 29 '15

Effect of increased reduction on Blake-type crushers. M. W. Heller. *Eng & Min J* 99:399-400 Fe 27 '15

Kennedy blunger type crusher. *il Iron Tr* 12:57:27 J1 1 '15

Largest rock breaker. *Eng & Min J* 99:577 Mr 27 '15

Machine for reclaiming metals. *il diag* Elec R & W Elec'n 67:440-1 S 2 '15

Marcy ball mill described. *diag* Eng & Min J 100:147 J1 24 '15

Modern rock-crushing plant. P. K. Yates. *il plans* Eng N 73:582-6 Mr 25 '15

New secondary rock crusher. *diag* Eng N 73:1098 Jo 3 '15

New types of grizzlies. *il Eng & Min J* 99:241-2 Ja 30 '15

Reclaiming metals from cinder: Standard equipment company crusher. *il diag* Foundry 43:327-8 Ag '15

Shaft-rockhouse practice in the copper country. L. H. Goodwin. *plan* Eng & Min J 100:10-11 J1 3 '15

Standard cinder crushers. *il diag* Metal Ind n 5:18:42-3 Ag '15

Starting a large, loaded, gyratory crusher by reversing the motor. A. C. Hewitt. *Elec R & W Elec'n* 65:1173 D 19 '14

Successful roll operation. J. Ifumou. *Eng & Min J* 99:815-16 Ap 3 '15

Tel Smith crushing plants. *il Munic J* 39:825-6 N 25 '15

Tendency of American milling machinery practice. J. I. Wilo. *Eng & Min J* 99:691-4 Ap 17 '15

See also Hardinge mill

Cryptographs. See Ciphers

Crystallography

Chemical significance of crystalline form. W. Barlow and W. J. Pope. *il Am Chem Soc J* 36:1875-86 Ag '14

Electron theory and metallic selenium crystals. *Proc W* 64:1152 D 12 '14

Fractional crystallization of the picrates of the rare earths of the didymium group. L. M. Dennis and H. H. Rhodes. *Am Chem Soc J* 37:807-15 Ap '15

Method of reducing some metals in crystallized form on glass slips as permanent microscope mounts. J. H. Bowman. *il Am Chem Soc J* 37:1468-71 Je '15

Mixed crystals of ammonium chloride with manganese chloride. H. W. Foote and B. Saxton. *Am Chem Soc J* 36:1695-1704 Ag '14

Remarks concerning the chemical significance of crystalline form. T. W. Richards. *Am Chem Soc J* 36:1880-95 Ag '14

X-ray spectrometer for the study of the proportions of crystals. *diag* Sci Am S 79:19 Ja 9 '15

X-rays and crystalline structure. Sibley J 29:103-6 Ja '15; Same. *Sci Am S* 79:82 F 6 '15

X-rays and crystalline structure. W. H. Bragg. *Sci Am S* 79:5-7 Ja 2 '15

See also Liquid crystals

Crystals, Liquid. See Liquid crystals

Cuba**Industries and resources**

Geology of the iron-ore deposits in and near Pinar del Rio, Cuba. J. F. Kemp. *il diag* map Am Inst Min B Bul 105:1801-36 S '15

Iron deposits of Pinar del Rio, Cuba. W. Lindgren and C. D. Ross. *ibid* 105:1801-36 S '15

Mayer iron-ore deposits, Cuba. J. F. Kemp. *il Am Inst Min B Bul* 98:129-54; 103:1461-3 F, J1 '15

Culebra cut. See Panama canal-Culebra cut

Culm

Disappearing culm piles. *il Colliery* 35:648 J1 '15

Cultivators. See Soil millers

Culverts

Concrete culvert pipe and concrete piles. *Ry Age* 59:762-3 O 23 '15

Construction of the large canal crossing of Oak Orchard creek. E. Low. *il diag* Eng N 73:430-2 Mr 4 '15

Corrugated metal culverts for roads. *Metal Work* 84:457 O 8 '15

Corrugated pipe used successfully for culverts. *il Eng Rec* 71:558 My 1 '15

Culvert with ditch connection. F. O. Nelson. *diag* Eng N 74:943-4 N 11 '15

Culverts damaged by extreme freshet in small creek. A. E. Steere. *il Eng N* 74:650-1 S 30 '15

Development in culvert construction. H. J. Whiston. *Munic Eng* 48:134-5 F '15

Discussion of the administrative and design features of highway bridge and culvert work. A. Marston. *Eng & Contr* 42:589-90 D 23 '14

Economic design of culverts for various depths of fill. T. K. Sheldler. *il diag* Eng & Contr 42:588-90 Mr 31 '15

Half-circle corrugated culverts for street drainage. J. C. Hilteshow. *il diag* Eng N 73:270 F 1 '15

Interlocking sectional concrete culvert. *il Concrete* (Gen) 7:127 S '15

Service secured from corrugated iron culverts. *il Ry Age* 58:316-18 F 19 '15

Small highway culverts. J. W. Strack. *il Munic Eng* 48:316-17 My '15

Standard concrete culverts recommended by the Michigan highway department. *diag* Eng & Contr 43:44 Ja 13 '15

Standard lateral drainage culvert for St. Mary's canal, Milk river project, U. S. reclamation service. *diag* Eng & Contr 43:385 Ap 28 '15

Standard small culverts recommended by the Illinois highway commission. *diag* Eng & Contr 42:572 D 16 '14

Tests of some large reinforced concrete culvert pipe. W. J. Schlick. *il diag* Concrete Cem 6:78-80 F '15

See also Bridges

Cost

Cost of concrete culverts and bridge in Milwaukee county, Wisconsin, in 1913. *il Eng & Contr* 42:486-7 N 13 '14

Cumberland, Maryland

Water supply

- Construction of Cumberland waterworks. F. H. Eastman. *Il Eng Rec* 71:137-8 Ja 30 '15
 Water-supply and typhoid fever at Cumberland, Md. A. G. Fowler and M. J. Colton. *Il Eng N* 73:969-70 My 20 '15

Cumberland road

- Old National road and its reconstruction. C. H. Moorefield. *Il diag Eng & Contr* 43:227-9 Mr 10 '15

Cummins amendment. See Railroad law

Cumulative voting. See Corporations

Cuneform inscriptions. See Inscriptions, Cuneform

Cuneform writing

- Cuneforms. W. Lico. *Inland P'tr* 54:367-8 D '14

Cupellation

- Rule governing cupellation losses. W. J. Sharwood. *Am Inst Min E Bul* 104:1671-6 Ag '15; Excerpts. *Met & Chem Eng* 13:927 D 1 '15; Discussion. *Am Inst Min E Bul* 108:2454 D '15

Cupola furnaces

- Bridging of a cupola. W. J. Keep. *Foundry* 43:310 Ag '15
 Continuous malleable cupola practice increasing output of malleable castings. L. M. Gilmore. *Iron Age* 95:306-8 F 4 '15
 Cupola bed and blast pressures. R. Moldenke. *Foundry* 43:98 Mr '15
 Cupola melting experiments. *Iron Age* 96:187 J 22 '15; Same. *Ind Eng* 15:105 S '15
 Cupola operation for continuous pouring. J. F. Krvin. *Il Iron Age* 96:183-5 J 22 '15
 Desulphurization in cupola practice. *Iron Age* 96:468-9 Ag '15
 Foundry cupola of new and interesting design. G. B. Brandon. *diag Foundry* 42:469 J 1 '15
 How to increase safety of cupola operations. *Il diag Foundry* 43:445-6 N '15
 Insufficient air for the cupola. W. J. Keep and G. C. Hicks. *Foundry* 43:102-3 Mr '15
 Large heats made in small cupolas. J. H. Anderson. *Il Foundry* 43:241-2 Je '15
 Liquid fuel for melting. *Iron Tr R* 57:322-3 J 29 '15
 New system of tuyeres. *diag Foundry* 43:381 S '15
 Points on cupola practice. R. C. Hogdon. *Foundry* 43:17-18 Ja '15
 Preventing cupola explosions. F. Oswald. *Il diag Iron Tr R* 55:1238-4 D 31 '14
 Regulating the height of fuel bed in cupolas. R. Moldenke. *Foundry* 43:28 Ja '15
 Scientific operation of a cupola. L. Townsend. *Il diag Iron Tr R* 57:123-5 J 15 '15; Same. *Foundry* 43:322-4 Ag '15; Same. *Iron Age* 95:590-1 Mr 11 '15
 Slow cupola melting. *Foundry* 43:187 Ap '15
 Slow melting and cupola lining burning-out. W. J. Keep. *Foundry* 43:183-4 My '15
 Slow melting in the cupola. C. Metcalf. *Foundry* 43:108 Mr '15
 Slow melting in the cupola. J. H. Anderson. *Foundry* 43:180-1 My '15
 Straight or beaked cupola lining. W. J. Keep. *Foundry* 43:183 My '15
 Use of relief valves on cupola blast pipes. *Foundry* 43:26-7 Ja '15

See also Foundry practice

Curbs

- Akron, Ohio, curbs and gutters. J. A. Gehres. *Munic J* 38:219 F 18 '15
 Buckeye Boreas curbing. *Il Munic Eng* 48:371-3 Je '15
 Construction details and costs. *Munic J* 38:153-9 F 4 '15
 Curb and gutter in cities and counties, 1915; tabulation. *Munic Eng* 48:363-4 Ap '15
 Increased radius of curb at street corners. *Il diag Eng & Contr* 44:168 S 1 '15; *Eng Rec* 72:899 S 4 '15; Good Roads n s 10:101 S 4 '15; *Munic J* 39:433-4 S 16 '15; *Munic Eng* 49:183-4 N '15
 Street and sidewalk improvement in the United States and Canada; tabulation. *Munic Eng* 48:352-3 Je '15
 Street curbs of sandstone in Toledo. C. L. Sawyer. *Munic J* 38:40 Ja 14 '15

Curbs, Concrete

- Analysis of concrete curb construction for suburban improvements near New York city. A. C. Haskell. *Il diag Eng & Contr* 43:58-61 Ja 20 '15
 Concrete curb and gutter as constructed in Denver. L. B. Van de Groyen. *Il Munic Eng* 48:16-18 Ja '15
 Constructing concrete curbs. H. W. Hatton. *diag Munic J* 38:768-70 Je 3 '15
 Costs reduced by monolithic curb, gutter and pavement. *Il diag Eng Rec* 71:111 Ja 23 '15

Curtains. See Lace curtains

Curtis, Truman

- Truman Curtis, cartoonist. H. Hurley. *Il Inland P'tr* 56:84-6 O '15

Curtis publishing company

- Equipment of large publishing house; power plant, interior wiring and special features of the Curtis publishing company's building, Independence square, Philadelphia. *Il diag plans Elec W* 65:905-31 Ap 10 '15
 Saving with electric vehicles. *Il Elec W* 65:1063-6 Ap 24 '15

Curve plotting

- Estimating curves for standard bridges of the Illinois highway department. G. F. Burch. *Il diag Eng & Contr* 43:123-6 F 10 '15; Same cond. *Eng Rec* 72:171-3 Ag 7 '15
 Graphic method for speed-time and distance-time curves. M. C. Woodruff. *Am Inst R R Pro* 33:1689-92 N '14; Discussion. 31:2804-46 N '15
 Graphic methods for presenting data. W. C. Brinton. *diag Eng M* 48:396-406, 651-63 D '14-Ja '15
 Method of laying out curves. *Colliery* 36:144 O '15
 Plotting the involute curve. J. Edgar. *diag Mach* 21:180-3 F '15
 Railway motor characteristic curves. E. M. Kimball. *Il Gen Elec* 18:206-9 Ap '15
 Two ways of laying out a compound curve. E. Strickhoff. *Mech E* 45:426 F 27 '15

Curves

- Curves for solving the hydrostatic entenary. H. M. Hibb. *Eng N* 73:668-70 Ap 8 '15
 Curves for strength and deflection of very long columns. E. L. Robinson. *Eng N* 73:1108-9 Je 10 '15
 Elastic curve applied to the design of the Schotenville bridge. D. B. Steinman. *Eng Rec* 72:258-60 Ag 28 '15
 Hydrostatic entenary flume on a concrete aqueduct. H. B. Muckleston. *Il diag map Eng N* 74:558-63 J 18 '15
 To find maximum overhang of car on curve at platform. L. C. Jordan. *Eng Rec* 71:340 Mr 13 '15
 Vertical curve for conveyors and inclined planes. R. J. Mumpson. *Colliery* 35:663-4 J 1 '15

See also Curve plotting; Railroads--Curves and turnouts

Cut-outs. See Electric protective apparatus

Cutlery

- Cutlery works of Thiers. J. Boyer. *Il Sci Am* 8 70:184-5 Mr 20 '15
 Future of Sheffield light trades. *Engineer* 119:558-9 Je 4 '15
 What capturing a German trade means. *Sci Am* 112:408 My 1 '15

Cutting machines

- Air-operated cutting-off machine. *Il Iron Age* 96:1185 N 18 '15
 Anderson die forming machine. *Il Mach* 22:167-8 O '15
 Curtis automatic shrapnel-shell cutting-off machine. *Il Mach* 21:925-6 J 1 '15
 Cutting-off attachment for lathes. *Il diag Engineer* 120:839 O 8 '15
 Cutting tools. *Il Engineer* 119:275-7 Mr 19 '15
 Cutting tools for bars and wheels. *Il Iron Tr R* 57:877-8 O 7 '15
 Flue cutter. L. Lebovitz. *diag Ry Age (Mech ed)* 39:542 O '15
 Gang slitting machine for metal sheets. *Il Iron Age* 96:447 Ag 19 '15
 Gould & Eberhardt turret-type ring gear roughing machine. *Il Mach* 21:761-2 My '15

Cutting machines—Continued

- Heavy cutting-off machine, by the George Gorton machine co., Racine, Wis. *II Iron Age* 95:1084-5 My 18 '15.
Machine for cutting bevel gears. *II Iron Tr R* 56:465-4 Mr 4 '15.
Machine for cutting off copper bands. *II diag Iron Age* 96:243 J1 29 '15; *Mach* 21:1020 Ag '15.
Machine for cutting rail ends. *II Iron Age* 96:1183 N 18 '15.
Miter cutting machine for steel shapes. *II Iron Age* 95:1119 My 20 '15.
New cutting off machine, by the Williams tool co. *II Iron Tr R* 56:932 My 6 '15.
Rotary cutting-off machine. *II diag Engineer* 119:83-5 Ja 22 '15.
6-in. rotary cutting off machine. *II Iron Age* 96:126-7 J1 15 '15.
Special bar cutting-off machine. *II Iron Age* 96:363 Ag 12 '15.
Special shrapnel cutting-off machine. *II Iron Age* 96:193 J1 22 '15.
Trimming machine for shrapnel shells. *II Iron Age* 96:1225 Je 3 '15.
See also Drilling and boring machinery; Gear cutting; Grinding wheels; Machine tools; Metal cutting; Milling machines; Steel cutting; Thread cutting machines

Cutting machines (for textiles)

- Cameron principle of cutting fabrics. *II Textile World* 40:605-6 S '15

Cuyuna range. See iron mines and mining—Minnesota**Cyanamid**

- Cyanamid process. F. S. Washburn. *Met & Chem Eng* 13:309-14 My '15.
Cyanamid works at Niagara Falls. *II plan Eng* N 73:16-21 Ja 7 '15.
Fixation of atmospheric nitrogen. W. S. Landis. *II Met & Chem Eng* 13:214-18 Ap '15; *Same, J Ind & Eng Chem* 7:435-8 My '15.
Recent advances in the chemistry of the cyanogen compounds. J. H. Chemell. *Biblog Am Inst Min* 19 Bul 106:2115-28 () '15; *Same pt 2. Met & Chem Eng* 13:766-8 () '15 '15

Cyano acid

- Use of cyano acid in glacial acetic acid solution, and in mixtures of glacial acetic acid with other organic solvents; derivatives of 1-isobutylic acid amino-6-dimethylhydantoin. J. L. Bailey and W. T. Read. *Am Chem Soc J* 37:1884-93 Ag '15

Cyanide plants

- Amador consolidated milling plant, Amador City, Calif. T. M. O'Brien. *II flow sheet Eng & Min J* 100:255-7 Ag 14 '15.
Building the Tough-Craker mill. J. A. Baker. *II diag Eng & Min J* 100:869-74, 915-18 N 27-1 () '15.
Consulting metallurgist and metallurgical investigations. W. R. Hyth. *Met & Chem Eng* 13:251-2 Ap '15.
Effect of mineralized waters in cyanide mills; abstract. T. B. Stevens and W. S. Bradley. *Met & Chem Eng* 13:389 Ja '15.
Labor and power used in cyanide mills. H. A. McGraw. *Eng & Min J* 99:312-14 F 13 '15.
Mill and cyanide plant of Chiksan mines, Korea. G. W. De Wilt. *II plan Am Inst Min* 19 Bul 101:931-6 My '15; *Abstract. Met & Chem Eng* 13:388 Ja '15.
Pleasant-Glover cyanide mill. A. McLaren. *II Eng & Min J* 100:177 J1 31 '15.
Pittsburg-Bolores mining co.'s mill at Rockland, Nevada. E. J. Schrader. *II Eng & Min J* 99:653-4 Ap 10 '15.
Rainbow mill, Oregon. W. M. Duke, Jr. *II plan Eng & Min J* 99:1103-6 Je 26 '15.
Simple cyanide-plant design. S. A. Worcester. *diag flow sheet Eng & Min J* 100:631-3 () '15.
Tonopah plant of the Belmont milling co. A. H. Jones. *II diag flow sheet Am Inst Min* 19 Bul 104:1731-58 Ag '15; *Abstract. Met & Chem Eng* 13:811-12 N 1 '15

Cyanide process

- Aluminum precipitation at Nipissing. F. M. Hamilton. *Eng & Min J* 99:588-71 Mr 27 '15.
Analysis of cyanide practice. H. A. McGraw. *Eng & Min J* 99:98-9 Ja 9 '15.
Assay of cyanide solutions, lead acetate method. *diag Eng & Min J* 100:521-2 S 25 '15

- Assaying gold-bearing cyanide solutions. D. M. Levy and H. Jones. *Eng & Min J* 100:150 J1 24 '15.
Chart for determining tailings value. W. J. McCauley. *Eng & Min J* 99:575 Mr 27 '15.
Combined cyanide and other processes. H. A. McGraw. *Eng & Min J* 98:1007-9, 1127-9 D 5, 26 '14.
Cost of cyaniding. H. A. McGraw. *Eng & Min J* 99:186-7 Mr 13 '15.
Cyanidation of low-grade sulphide ores in Colorado. H. C. Parmelee. *II plan Met & Chem Eng* 13:421-5, 477-9 J1-Ag '15.
Cyaniding at the Bullfinch proprietary, western Australia. *diag Met & Chem Eng* 13:331-2 My '15.
Cyaniding at the Sons of Gwalia, Australia. A. Wauchope. *flow sheets Met & Chem Eng* 13:925 D 1 '15.
Cyaniding practice of Churchill milling co., Wonder, Nev. H. C. Carpenter. *plan Am Inst Min* 19 Bul 102:1317-32 Je '15; *Abstract. flow sheet Met & Chem Eng* 13:813-14 N 1 '15.
Development of continuous counter-current decantation in cyanidation of slime. W. J. Pentland. *plan Met & Chem Eng* 13:105-7 F '15.
Effect of air in zinc-dust precipitation systems. D. W. Miner. *II diag Eng & Min J* 99:534-5 Mr 20 '15.
Effect of carbon in contact with auriferous cyanide solutions; abstract. W. R. Foldtman. *Met & Chem Eng* 13:389 Je '15.
Effect of carbon or graphite on auriferous cyanide solutions. P. T. Jirühl. *Met & Chem Eng* 13:873-4 N 15 '15.
Electrolytic precipitation of gold, silver and copper from cyanide solutions. G. H. Clevenger. *diag Met & Chem Eng* 13:803-6, 852-60 N 1-15 '15.
Filtration of slime. L. D. Mills. *Met & Chem Eng* 13:724 () '15 '15.
Gold milling in California—a comparison. L. A. Palmer. *II diag Met & Chem Eng* 13:617-24 S 15 '15.
Gold precipitation on paper. D. Lay. *Eng & Min J* 100:276-7 Ag 14 '15.
Grinding ore for cyanidation; a suggested modification for all-slime practice. W. J. Pentland. *Met & Chem Eng* 13:205-6 Ap '15.
Grinding ore for cyanidation; a suggested modification for all sliming practice. H. S. Pottis. *Met & Chem Eng* 13:9-10 Ja '15.
Liquid jets. C. T. Du Bell. *Met & Chem Eng* 13:714-16 () '15 '15.
Method for the determination of gold and silver in cyanide solutions. L. W. Rahney. *II Am Inst Min* 19 Bul 98:339-44 F '15; *Discussion. 101:1137-9 My '15*
Notes on Homestake metallurgy; stamp milling; analysis of lost time; cost. A. J. Clark. *II Am Inst Min* 19 Bul 103:1281-1400 J1 '15; *Abstract. Met & Chem Eng* 13:764-6 () '15 '15; *Discussion. Am Inst Min* 19 Bul 108:2453-4 D '15
- Precipitating apparatus for use in cyaniding. *plan Eng & Min J* 99:1079 Ja 19 '15.
Precipitation of cyanide solutions. G. H. Clevenger. *Met & Chem Eng* 13:725 () '15 '15.
Process of cyaniding; a patented procedure. *Met & Chem Eng* 13:871 N 15 '15.
Pulp constants, with tables to facilitate tonnage calculations for pulps of all usual solution and dry slimes specific gravities. G. H. Clevenger. *II W. Young and T. N. Turner. Eng & Min J* 98:1079-84 D 19 '14
- Recent advances in the chemistry of the cyanogen compounds. J. H. Chemell. *Biblog Am Inst Min* 19 Bul 106:2115-28 () '15.
Refining cyanide precipitates. H. T. Durant. *Eng & Min J* 100:523-4 S 25 '15
- Slime agitation and solution replacement methods at the West End mill, Tonopah, Nev. J. A. Carpenter. *diag Am Inst Min* 19 Bul 104:1630-51 Ag '15; *Same. Met & Chem Eng* 13:671-6 () '15
- Solution of gold and silver. M. H. Kuryla. *Met & Chem Eng* 13:723-4 () '15 '15
- System of zinc-slaving disposal. J. Shumons. *II Eng & Min J* 100:725 () 30 '15
- Treatment of arsenical-antimonial sulphide ore; abstract. K. B. Moore and H. R. Kilmann. *Met & Chem Eng* 13:508-9 Ag '15

Cyanide process—Continued

- Tube-milling in all-slime cyanide practice. W. J. Pentland. *Met & Chem Eng* 12:750-3; 13:204-5 D '14, Ap '15
- Tube-milling tonnage calculation and notes on tube-milling. J. H. Haynes. *Met & Chem Eng* 13:10-12 Ja '15
- Use of hydrometallurgical apparatus in chemical engineering. J. V. N. Dorr. *Ind Eng & Chem* 7:119-30 F '15; Same. *Met & Chem Eng* 13:55-9, 91-8 Ja-K '15
- Zinc-dust precipitation tests. N. Herz. *Am Inst Min En Bul* 104:1507-13 Ag '15; Abstract. *Met & Chem Eng* 13:973-4 D '15 '15
- Zinc in the cyanide mill. A. Dorfmann. *Eng & Min J* 100:680 O 23 '15
- See also Cyanide plants

Cyanides

- Cyanide consumption in the United States and Canada. *Met & Chem Eng* 12:743-4 D '14
- Cyanide from coal gas. C. C. Tutwiller. *Met & Chem Eng* 12:785 D '14
- Making cyanide from cyanamide. *Eng & Min J* 99:272 K 6 '15
- Metal cyanides. *Metal Ind n s* 13:474-5 N '15

Cyanogen

- Determination of Prussian blue in washer sludge and spent oxide. *Am Gas Light J* 103:151 S 6 '15

Cyanogen compounds

- Recent advances in the chemistry of the cyanogen compounds. J. M. Glennell. *Bibliog Am Inst Min En Bul* 106:2115-28 O '15; Same pt 2. *Met & Chem Eng* 13:766-8 O '15 '15

Cyclecars

- Cyclecar the future means of transportation. H. K. Randall. *Automobile* 31:1076 D 10 '14
- Morse cycle car has front drive. *Automobile* 33:277 Ag 12 '15

Cyclograph. See Cathode ray tube**Cylinders**

- Blinder for cylinder cores. W. J. Keop. *Foundry* 43:240 Je '15
- Cylinder friction and lubrication testing apparatus. A. Flowers. *diag Power* 42:208-10 Ag 10 '15
- Machining motor cycle parts. D. T. Hamilton. *Il Mach* 21:377-80 Ja '15
- Practice of the oxy-acetylene welding process; welding of cylinders. S. W. Miller. *Il Mach* 22:111-14 O '15
- Quick-closing door for pressure cylinders. *Il diag Eng N* 73:1064-5 Je 3 '15
- Thickness of cylinder wall. T. N. Haffner. *Mach* 21:373 Ja '15
- Weight of rods or cylinders per running inch. W. L. Tryon. *Foundry* 43:16a, 58a Ja-K '15
- See also Pistons

Cypress

- Cypress and juniper trees on the Rocky mountain region. C. B. Sudworth. 28 pls 11 maps U S Agric Bul 207:1-36 '15
- Southern cypress. W. R. Mattoon. *Il map U S Agric Bul* 272:1-74 '15
- Suggestions for using cypress knees. H. K. Weiss. *Il Am For* 31:1041-2 N '15
- Use of native woods for interior finish. C. M. Price. *Il Brickb* 24:219-21 S '15

D**Dairy houses**

- Plan for a small dairy house. M. Kelly. *Il plan U S Agric Farmers' Bul* 689:1-4 '15

Dairy products

- British India. U S Sp Comm Rep 72:270-5 '15

Dakota sand

- Oil, gas, and water content of Dakota sand in Canada and United States. L. C. Huntley. *Am Inst Min En Bul* 103:1323-53 Je '15; Discussion. 103:2428-30 D '15

Dallas-Cello canal

- Lock gates for Dallas-Cello canal. *diag plan Eng Rec* 70:614-16 D 5 '14

Dam failures

- Blowout at end of concrete dam, Seneca Falls, N. Y. *Il Eng N* 74:570-1 S 18 '15

- Construction, failure and reconstruction of a small dam near Tullahoma, Tenn. J. Wilkes. *Eng & Contr* 42:464-7 N 11 '14
- Failure of Lyman dam, Arizona. *Eng N* 73:794 Ap 22 '15
- Failure of small earth dam. G. H. Ruhlins. *Il Eng N* 73:1121 Je 10 '15
- Failures and partial failures of dams in Pennsylvania. *Eng & Contr* 43:75 Ja 27 '15

Damages

- Adjustment of the consequential damages at the Tower Grove crossings. L. R. Bowen. *Asm Eng Soc J* 55:116-21 O '15
- Protecting dealer on producer's guarantee. M. J. Buckley. *Metal Work* 84:503 N 5 '15
- See also Employers' liability; Personal injuries; Railroads—Claims; Street railroads—Claims

Damascus steel

- Damascus blades. *Sci Am S* 79:200-2 Mr 27 '15

Damask steel. See Damascus steel

- Damp-proof timber floor. Cost of. J. A. Holmes. *Eng N* 72:332-3 Ag 27 '14; Same. *Ind Eng* 14:372-3 S '11; Same. *Bldg Age* 37:18 Ap '15

Dampers

- Dampers for large sheet metal ducts. *diag Metal Work* 83:668 M 7 '15

Dams

- American's greatest irrigation project; Bassano dam, southern Alberta. Z. E. Black. *Il Sci Am* 113:252-3 S 18 '15
- Bombay hydro-electric scheme. A. Dickinson. *diag map Inst E E J* 53:693-5 M 15 '15
- Caverns under the Austin, Texas, dam. A. C. Hanton. *map Eng N* 73:788-9 Ap 22 '15
- Considerations of sliding, overturning, crushing and blow-outs in dam design, by the Ohio river board. W. J. Mitchell. *diag Eng & Contr* 41:133-1 S 8 '15
- Contract methods and equipment for a typical Ohio river dam. K. H. Shriver. *Il diag plan Eng N* 73:806-11 Ap 20 '15
- Corn Rapids low head hydro-electric development on the Mississippi river near Minneapolis. J. W. Link. *Il diag plan W Soc E J* 19:370-1000 D '11; Same cond. *Eng & Contr* 43:151-2 F 17 '15; Discussion. *W Soc E J* 19:1007-15 F '14
- Design low dam for 30-foot height increase across Nottuckkey river. W. V. N. Powell. *Il Eng Rec* 71:175 6 F 6 '15
- Handling hydraulic fill on Flute dam. J. Jensen. *Il diag Eng Rec* 72:200 1 Ji 17 '15
- Hindia dam on Euphrates river. *Il diag plan map Eng Rec* 71:24-5 Ja 2 '15
- How Colorado dam construction is supervised. *Eng Rec* 72:252-3 Ag 28 '15
- Hydraulic fill dam for an earthquake region: work on the Calaveras reservoir of the San Francisco water supply. *Sci Am* 112:154-1 F 13 '15
- Hydro-electric plant at a Bolivian tin mine. M. R. Lamb. *Il Eng & Min J* 99:7-9 Ja 2 '15
- Jam-proof dam. *plan Eng N* 73:805 M 5 '15
- Lahontan dam. Truckee-Carson irrigation project, Nevada. D. W. Cole. *Il diag map Eng N* 73:768-62 Ap 22 '15
- Methods and costs of belt conveyor earth-handling for the Lahontan dam. *Eng & Contr* 44:414 N 24 '15
- Models, properly designed, show correctly performance of dams and turbines. R. E. Grant. *Eng Rec* 72:377-8 S 25 '15
- Pennsylvania commission issues rules regarding dams. *Eng Rec* 72:225 Ag 21 '15
- Percolation and upward pressure of water: abstract. W. A. Mitchell. *Am Soc M E J* 37:121-2 F '15
- Provision for upward pressure and interior drainage in designing new Lock Haven dam at Baltimore. *Eng & Contr* 43:150 F 17 '15
- Shearboards versus summit pools in hydraulic dam construction. R. M. Overstreet. *Eng Rec* 70:678 D 19 '14
- Spaulding-Drum power development: with discussion. J. A. Britton. *Il diag Am Soc M E J* 37:315-22 Ap '15
- Swedish government builds hydroelectric plant above the Arctic circle. *Il diag Eng Rec* 72:168-9 Ag 7 '15
- Uses for power from irrigation dams: abstract. E. K. Scott. *Ind Eng* 14:412-13 O '14

Dams—Continued

- Water slopes of earth dams protected in novel way. A. P. Davis and D. C. Henney. *Eng Rec* 72:452 O 9 '15
- West Fork waterworks dam at Fort Worth. *II diag Eng Rec* 71:147-8 Ju 30 '15
- West Fork waterworks dam at Fort Worth. H. G. McCormick; J. H. Hawley. *Eng Rec* 71:307-8 Mr 6 '15
- Winter operation of Stoney gates. *II diag Eng Rec* 70:691-D 26 '14
- See also:* Cofferdams; Dam failures; Embankments; Hydroelectric plants; Irrigation; Reservoirs; also Elephant Butte dam; Kensico dam

Architecture

- Architecture of Kensico dam. A. D. Flinn. *II diag Eng Rec* 74:433-6 S 2 '15

Foundations

- Excavation for foundation of Elephant Butte dam. E. H. Baldwin. *II diag plan Eng Rec* 73:49-54 Ja 14 '15
- German studies of uplift pressure on masonry dams. H. Schaefer. *diag Eng & Contr* 44:218-21 S 22 '15
- Grouting foundations for gravity-section dam. H. S. Johnston. *diag Eng Rec* 70:650-1 D 12 '14
- Micaceous rock requires careful watching. C. M. Saville. *Eng Rec* 72:519 O 23 '15
- Rock-fill dam with some extraordinary foundation problems. M. C. Hinderlider. *II diag Eng Rec* 73:600-4 Ap 8 '15

Dams, Concrete

- All-concrete dams: the next step in the evolution of masonry dam construction. *Eng & Contr* 43:89 F 3 '15
- Arrowrock dam. C. F. Paul. *II Boston Soc C* 10 J 2:337-49 N '15
- Austin dam and power plant. E. S. Taylor. *II Eng & Contr* 43:465-7, 492-5 My 26-Jo 2 '15; Same cond. *Elec R & W Elec'n* 66:939-45 My 22 '15; Same cond. *Eng Rec* 73:1089-93 Jo 3 '15
- Building the Mathis dams. E. Latuchill. *II diag plan Eng Rec* 74:529-32, 589-91 S 16-23 '15
- Concreteing methods and records. Elephant Butte dam. E. H. Baldwin. *diag Eng Rec* 74:690-8 O 7 '15
- Concreteing the Spaulding dam, California. *II Eng Rec* 73:1067 Jo 3 '15
- Construction on Elephant Butte dam for reclamation service in New Mexico near completion; views. *Eng Rec* 72:91 J 17 '15
- Construction plant and methods for concrete work on the Lock twelve dam, Coosa river, Alabama. E. L. Sayers and A. C. Polk. *diag plan Eng & Contr* 43:280-6 Mr 24 '15
- Construction plant at the Noyahg dam, Hartford, Conn. *II Eng Rec* 74:226-6 J 1 '15
- Design and construction of the Lake Watrous dam of the New Haven water co. C. M. Blair. *diag plan Eng & Contr* 44:100-2 Ag 11 '15
- Floods top unfinished dam green concrete uninjured. C. Wigmore. *II Eng Rec* 71:775 Jo 19 '15
- Follow reinforced-concrete structure replaces dam at Austin, Texas, which failed fifteen years ago. *II Eng Rec* 71:672-3, 707-9, 750-1 My 29-Jo 12 '15
- Hydroelectric development at Austin, Tex. *II diag Elec W* 65:1460-2 Jo 5 '15
- Kensico dam construction in 1914. W. F. Smith. *II plan Eng Rec* 73:966-8 My 20 '15
- Masonry placing records at three dams compared. *Eng Rec* 71:213 F 13 '15
- Multiple-arch dam to retain quartz mill tailings. *II Eng Rec* 73:818-19 Ap 29 '15
- Multiple-arch diversion dam at Three Mile Falls, Oregon. H. D. Newell. *II diag Eng Rec* 73:1009-12 My 27 '15
- Old and new Bear valley dams and Crags dam in service. J. B. Lippincott. *II Eng Rec* 74:854-5 O 28 '15
- \$101,000 hollow concrete dam, St. Francis river. *diag Eng Rec* 74:1032-3 N 25 '15
- Placing masonry for the Elephant Butte dam, New Mexico. H. H. Baldwin. *II diag Eng Rec* 74:845-9 S 30 '15
- Questions about the Austin, Tex., dam. J. D. Justin; E. S. Taylor. *Eng Rec* 74:182-3 J 22 '15

- Reconstruction of the Austin, Texas, dam. *II Eng Rec* 73:528-9 Mr 18 '15
- Reinforced concrete storage dam at Swift Current, Sask., Canada. J. B. Babcock. *II diag Concrete Com* 6:199-201 Ap '15
- Rhipogonus dam on the upper Penobscot in Maine. *II Eng Rec* 74:282-3 Ag 5 '15
- Salmon creek dam; a constant-angle arch type. *II map Eng Rec* 73:472-4 Mr 11 '15; Abstract. *Eng Rec* 49:282 My '15
- Small impounding and diversion dam and measuring weir at Jordan Narrows. S. Q. Cannon. *II Eng Rec* 73:860 My 6 '15
- Thermophones in Kensico dam. W. F. Smith. *diag Eng Rec* 72:1172 D 10 '14
- Well-designed concrete plant aids construction of waterworks dam. *II plan Eng Rec* 72:602-4 N 13 '15
- Yardage record at Kensico dam due, in part, to operation of mixers. G. T. Seabury. *Eng Rec* 71:199 F 13 '15
- Dams, Mine. See Mine dams**
- Danger signs. See Signs**
- Daniels, Josephus, 1862-**
- Our naval development as related to national defense. J. H. Edwards. *Eng Rec* 50:173-94 N '15
- Dardanelles**
- Defenses of Constantinople. H. C. Woods. *II Sci Am* 8 80:2-3 J 13 '15
- Forcing the Dardanelles. *II map Sci Am* 112:241, 264-5, 316-17 Mr 13-20, Ap 3 '15
- Lesson of the Queen Elizabeth. *Sci Am* 112:262 Mr 20 '15
- Super-dreadnought Queen Elizabeth at the Dardanelles. *plan Sci Am* 8 79:299 My 8 '15
- Dark days**
- Dark days and forest fires. C. F. Talman. *map Sci Am* 112:229 Mr 6 '15
- Dark rooms. See Radiography**
- Dartmouth college, Hanover, New Hampshire**
- Gymnasium: designs. Brickb 24:pl 54-5 Ap '15
- Davits**
- Davits and the new requirements. H. W. Brondy. *II diag Int Marine Eng* 20:260-4, 305-9, 355-8 Jo-Ag '15
- Martin-Brown compensating davit. *diag Int Marine Eng* 20:373-4 Ag '15
- Day labor**
- Contractor and management engineering. *Eng & Contr* 42:573 D 23 '14
- Experience in paying by day labor at Duluth, Minn. J. Wilson. *Eng & Contr* 43:445 My 19 '15
- Sewer work by day labor at Carlisle, Pa.; methods employed, hours of labor and itemized costs. J. C. Illieslaw. *II Munic J* 38:506-8 Ap 15 '15
- Daylight**
- Air shaft illumination as studied by models. C. H. Sharp. *illum Eng Soc* 9:598-610, no 7 '14
- Planning for daylight and sunlight in buildings; with discussion. L. B. Marks and J. H. Woodwell. *bibliog II diag illum Eng Soc* 9:643-86 no 7 '14
- Daylight, Artificial**
- Artificial daylight. H. B. Ives. *bibliog II J Fr Inst* 177:471-99 My '14; Same. *Sci Am* 8 78:305-8, 412-14 D 19-26 '14
- Artificial daylight in practice. M. Luckiesh. *II Elec W* 65:71-3 J 10 '15; Abstract. *Eng Rec* 49:918 S '15
- Artificial daylight—its production and use. M. Luckiesh and E. R. Cady. *bibliog illum Eng Soc* 9:839-94 no 8 '14; Same. *Am Gas Light J* 101:390-1 D 21 '14; Abstract and discussion. *Elec W* 64:555 O 3 '14; Discussion. *illum Eng Soc* 9:864-72 no 8 '14; Discussion. *Am Gas Light J* 101:391-4 D 21 '14
- Data on artificial daylight units. C. H. Sharp. *II illum Eng Soc* 10:219-21 no 3 '15
- Daylight glass; abstract. S. H. Gage. *Elec W* 66:1041 N 6 '15
- Development of daylight glass; with discussion. H. J. Brady. *diag illum Eng Soc* 9:887-90 no 9 '14
- Gaseous-conductor lamp for color matching; abstracts. I. M. Moore. *diag Elec W* 66:1160 N 20 '15; *Elec R & W Elec'n* 67:949 N 20 '15; *Met & Chem Eng* 13:886 D 1 '15
- Holding up the mirror. R. L. Godinez. *Arch & Bldg* 47:51-2 F '15

Dayton, Ohio

Electro-platers' 1915 convention city. W. Fraire. *II Metal Ind* n s 13:179-83 My '15
 Topographic survey of the city of Dayton. R. H. Randall. *Eng N* 74:942-3 N 11 '15

Floods

Engineering lessons from the Ohio floods. J. W. Alvord. *II Boston Soc C E J* 1:85-108; Discussion. 1:109-17 Mr '14
 Flood prevention plans for Dayton. W. S. Crandall. map *Munic Eng* 49:103-4 N '15

Politics and government

Commission and city manager forms of government. H. H. Rumble, R. W. Pentross and J. E. Burke. *Munic Eng* 49:54-5 Ag '15
 Commission-manager form of government and its relation to the engineering profession. H. M. Walter. *Boston Soc C E J* 2:1-14 Ja '15; Abstract. *Eng M* 48:891-6 Mr '15; Discussion. *Boston Soc C E J* 2:14-21 Ja '15
 Dayton's progress under commission-manager. W. S. Crandall. *Munic Eng* 49:67 Ag '15

Public works

Municipal exhibit at Dayton. *II Munic J* 39:690-2 N 4 '15

Daytona, Florida**Sewerage**

Sewage pumping, screening and sterilizing station at Daytona; specifications, plans *Eng & Contr* 42:525-7 D 2 '14

Dead animals

Removal of dead animals in cities. A. L. Hostwick. *Munic J* 38:64-5 Ja 21 '15

Deaf

Electrical equipment for enabling the deaf to hear. *II Elec W* 66:1221-2 N 27 '15

Deafness

Deaf-mutism produced by shock. *Sci Am N* 80:336 N 20 '15

Debating

Section foreman's debating society on the C. M. & St. P. Ry. W. H. Kofmehl. *Ry It* 56:665 My 15 '15

Debt

How "receipt in full" protects the holder. E. J. Buckley. *Metal Work* 83:622 Ap 23 '15

Decantation

Development of continuous counter-current decantation in cyanidation of slime. W. J. Portland. plan *Mot & Chem Eng* 13:105-7 E '15

Use of hydrometallurgical apparatus in chemical engineering. J. V. N. Dorr. *diag J Ind & Eng Chem* 7:126-9 E '15; Same. *Mot & Chem Eng* 13:94-6 E '15

Decatur, Illinois**Water supply**

Filtration plant, city of Decatur, Illinois. H. Rithrauff. *II Am Water Works Assn J* 2:455-64 Ja '15

Deckhouses. See Naval architecture**Decoration and ornament**

Craft of tile-making and its relation to architecture. J. H. D. Allen. *II Am Inst Arch J* 3:5-11 Ja '15

See also Architecture—Details; Concrete, Ornamental; Design, Decorative; Furniture; House decoration; Ironwork; Architectural; Lighting fixtures; Metal work; Mural painting and decoration; Show windows; Stucco; Textile design

Decorative design. See Design, Decorative**Decimeters**

Direct-reading instrument for measuring the logarithmic decrement and wave length of electromagnetic waves. P. A. Kolmer. *II diag II S Bur Stand Bul* 11:421-55 My 10 '15
 Recent advances in wireless measuring instruments. H. T. Wade. *II diag Sci Am* 113:356 O 23 '15

Deerfield river, Massachusetts

New plant marks further step in development of Deerfield river. *II diag map Eng Rec* 72:374-7, 423-4 S 25-O 2 '15

Defalcations. See Embezzlement**Defective children**

Teaching defective children. A. M. Jungmann. *Sci Am* 112:361 Ap 17 '15

Deformations (mechanics)

Recent experiments on elastic hysteresis: abstract. R. Grammel. *Am Soc M E J* 37:115-16 E '15

Dehydration

Centrifugal dehydration of water gas tar at Amsterdam. *Am Gas Light J* 102:349 My 31 '15

Dehydrating oil plant of Nevada petroleum co., California. H. J. Harrison. *II diag Am Inst Min E Bul* 95:637-44 Mr '15

Dehydrating petroleum oil. *diag Met & Chem Eng* 13:570 S 1 '15

Use of iodine as a dehydrating and condensing agent. H. Hilbert. *Am Chem Soc J* 37:1748-63 J1 '15

Delaware and Hudson railroad

85th annual report. *Ry Age* 58:875-6, 915-18 Ap 23 '15

Delaware, Lackawanna & Western railroad

Completing the summit cut-off of the Lackawanna. *II Ry Age* 59:809-10 O 29 '15

Construction of the Hallstead cut-off. D. L. & W. R. It. *II diag Ry It* 56:111-15, 143-9 Ja 23-30 '15

Tunkhannock viaduct nearing completion. *II Eng Rec* 72:42-3 J1 10 '15

Wireless telegraph and telephone on the D. L. & W. R. It. R. L. B. Foley. *II Ry It* 56:491-3 Ap 10 '15

Delhi, India

British India. map *U S Sp Cons Rep* 72:176-81 '15

Dementia. See Insanity**Demolition work. See Wrecking****Demonstration farms**

Development of Long Island. H. B. Fullerton. *Ry Age* 57:1040-1 D 4 '11

Demurrage

Impartial study of freight-car demurrage. J. C. White. *Ry Age* 58:828 Ap 16 '15

Using a blank to prevent demurrage. H. A. Russell. *Iron Age* 96:416 Ag 19 '15

Denatured electric current. See Electric currents**Dental cements**

Germinol efficiency of dental cements. P. Postelske. *II J Ind & Eng Chem* 7:195-202 Mr '15

Germinol efficiency of dental cements. P. Postelske. *J Ind & Eng Chem* 7:1000-1 N '15

Possible sterilizing properties of dental cements. W. V. Ames. *J Ind & Eng Chem* 7:723 Ag '15

Dental colleges

Evens museum and dental institute, University of Pennsylvania, Philadelphia: designs and plans. *Beckh* 21:pl 46-9 Ap '15

Two dental buildings: Evens museum and dental institute, University of Pennsylvania, Philadelphia. H. D. Eberlein. *II plans Arch Rec* 37:517-32 Je '15

Dental infirmaries. See Forsyth dental infirmary**Dental instruments and apparatus**

Small-sized dental motor for direct drive. *II Elec W* 65:563 E 27 '15; *Elec It & W Elec N* 66:661 Ap 3 '15

Use of electricity in a dental infirmary. *II Elec W* 66:202-4 J1 24 '15

Denver, Colorado

City planning and civic-center work in Denver. H. Head. *II Am Inst Arch J* 3:497-500 N '15

Description

Sheet metal contractors in Denver. *II Metal Work* 83:794-5 Ja 4 '15

Parks

Connecting roads to mountain parks of Denver, Colorado. O. H. Thum. *II Munic Eng* 49:15-17 J1 '15

Road construction in Denver's mountain parks. O. H. Thum. *II plan Munic J* 38:417-20 Ap 1 '15

Denver, Colorado -Continued**Streets**

Concrete curb and gutter. E. B. Van de Greyn. II Munic Eng 48:16-18 Ja '15

Water supply

Rotary screens remove macro-organisms from Denver's lake water supply. II Eng Rec 72: 291-2 S 4 '15

Denver & Rio Grande railroad

Abstract of annual report. map Ry Age 59: 845-6 N 5 '15

Deodorizers

Air ozonation. M. W. Franklin. J Ind & Eng Chem 8:852-3 O '14; Same. Am Soc Heat & V 12 20:344-50 '14

Experiment with ozone as an adjunct to artificial ventilation. A. M. Feldman. Heat & Ven 12:35-6 Mr '15

Investigations on the nature and elimination of odors and dust from a garbage reduction plant. H. W. Mahr and A. C. Kraft. II diag J Ind & Eng Chem 7:778-85 S '15

Ozone—an aid to factory ventilation. V. I. Greene. diag Eng M 49:517-25 J1 '15

Test plant operated to deodorize oil refinery wastes. F. L. Hesser. II diag Eng Rec 72: 541-2 O 30 '15

Department stores

Altman stores, New York. II Arch & Bldg 46: 439-46 N '14

Amos store, Cleveland, Ohio. II plans Arch & Bldg 47:359-64 O '15

Department store accounts. H. C. Magee. J Account 19:268-91 Ap '15

Heating and ventilation of main floor and vestibules of the Lord & Taylor store. J. Graham. diag Dom Eng 72:282-3 S 4 '15

Merchandising of hosiery and underwear. C. C. Parlin. Textile World 49:sup265 | My '15

Rosenbaum co, department store, Pittsburgh. J. Hunt. II Arch & Bldg 47:259-72 J1 '15

See also Mail order business

Depreciation

Accounting for depreciation. J. R. Cravath. Elec W 65:213-14 Ja 23 '15

Accounting for depreciation. R. Sealy. Elec W 65:460-1 P 20 '15

Basing depreciation on par value. Elec Ry J 45:1143 Ja 19 '15

Depreciation. J Account 18:492-3 D '14

Depreciation accounts. W. H. Lawton. Elec W 65:1678-9 Je 26 '15

Depreciation and confiscation. A. C. Humphreys. Ry Age 59:311-12 Ag 20 '15

Depreciation and valuation for rate making. L. H. Haney. J Account 19:314-51 My '15

Depreciation as applied to oil properties. P. W. Henry. Am Inst Min 13 Bul 97:23-30 Ja '15; Discussion. 101:1148-51 My '15

Depreciation formula of the American society of civil engineers. J. Bauer. J Account 20: 104-11 Ag '15

Depreciation in appraisals. J Account 19:458-60 Ja '15

Depreciation in public utilities. Elec W 66: 743 O 2 '15

Depreciation, interest and manufacturing cost. W. C. Wright. J Account 20:361-4 N '15

Depreciation of machine tools: abstract. Ind Eng 14:409 O '14

Depreciation of manufacturing plants. P. C. Colley. J Account 20:166-72 S '15

Depreciation of property. W. B. Curtiss. Con Elec R 18:1099-1100 D '15

Depreciation problems. H. Erickson. Am Gas Inst Pro 9:pt 2, 1682-1638; Discussion. 9:pt 2, 1638-82 '14

Discussion of depreciation. P. J. Kealy. Eng & Contr 44:118-23 Ag 18 '15

Distributing overhead expense. N. T. Meeker. Eng M 50:254-8 N '15

Idaho court overrules depreciation deduction. Eng Rec 72:480-1 O 16 '15

In rate-fixing by commission, should depreciation be deducted from plant valuation? A. C. Humphreys. Am Gas Inst Pro 9:pt 2, 1557-82; Discussion. 9:pt 2, 1638-82 '14

Life of way structure as affected by engineering and municipal conditions. P. N. Wilson. diag Elec Ry J 45:1212-13 Je 26 '15

Methods of figuring depreciation and present values. W. A. Del Mar. Ind Eng 14:402-3 O '14

Obsolescence as cause of depreciation. S. Walton. J Account 20:149-51 Ag '15

Problem of depreciation. G. O. May. J Account 19:1-13 Ja '15

Rational method of calculating depreciated value. H. P. Gillette. Eng & Contr 44:24-7 J1 '14 '15

Utilities bureau; conference on valuation, Philadelphia, 1915. Elec Ry J 46:1031-2 N 30 '15

Valuation of water works properties. H. P. Gillette. Eng & Contr 43:486-8 Je 2 '15

Derailments

Accident caused by defective wheels. H. W. Delnap. Ry Age 59:48 J1 9 '15

How an axle failed in service. II Iron Tr It 56:607-10 | Mr 25 '15

Mysterious derailments. R. P. Williams. Elec Ry J 45:1078-9 Je 5 '15

Report on freight train derailment, Chicago, Milwaukee & St. Paul Ry. Ry R 57:172-3 Ag 7 '15

Report on wreck due to broken car wheel. diag Ry It 56:789-91 Je 12 '15

Tender derailments. R. L. Wheatley. Ry It 56:654-5 My 15 '15

Tender derailments. C. W. Little. Ry Age (Mech ed) 89:58 P '15

Wreck due to a faulty car wheel. II Iron Tr It 57:937-40 | N 11 '15

Derelicts

Hunting for derelict ships. II Sci Am 112:606 Je 19 '15

Derrick cars. See Cams (derrick)**Desert lands**

United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 946-51 '15

Desert vegetation

Indiana desert. H. Maxwell. II Sci Am S 80: 248-50 O 16 '15

Deserts

Motor travel in desert country of southern California. I; H. Kddy. II Eng & Min J 100: 835-7 N 20 '15

Design

From the soil up—a new method of designing. A. Reutterlah. Eng & Contr 42:581-5 D 23 '14

See also Architecture—Designs and plans; Architecture, Domestic—Designs and plans; Bridge design; Concrete construction—Design; Machinery—Design; Textile design

Design, Decorative

Edward Edwards and his art. S. H. Morgan. II Inland Tr 55:516-17 J1 '15

Photo-kaleidograph. II Sci Am 112:103 Ja 30 '15

See also Textile design

Des Moines, Iowa**Politics and government**

Commission and city manager forms of government. H. H. Rumble. H. W. Pentross and J. B. Burke. Munic Eng 40:52-3 Ag '15

Dessauer process

Umbogen motion pictures. II Sci Am 112:312 Ap 3 '15

Destroyers. See Torpedo boat destroyers**Detarring. See Gas purification****Detonators**

Gun-primers and detonators. Sci Am S 80:35 J1 17 '15

New safety detonating fuse; Cordau detonant. H. Souder. II diag Am Inst Min 10 Bul 91:2547-56 O '14; Abstract. Eng M 48: 416-18 D '14; Discussion. Am Inst Min 10 Bul 100:895-902 Ap '15

Primer on explosives for metal miners and quarrymen. C. D. Munroe and C. Hall. pls U S Bur Mines Bul 80:29-46 '15

Detroit, Michigan

City plan for Detroit. H. H. Bennett. plans Am Inst Arch J 3:264-8 Ja '15

Re-planning in Detroit: report to the board of street railway commissions by Barelay, Parsons and Klupp. II Am Inst Arch J 3: 268-70 Je '15

Detroit, Michigan—Continued

Bridges

Closing Detroit-Superior arch. *Il Eng N* 74:813-14 O 21 '15

Hotels

Hotel Statler, Detroit, Mich. *Il plans Arch & Bldg* 47:89-101 Mr '15
Hotel Statler in Detroit. *W. S. Wagner. Il plans Arch Rec* 37:320-39 Ap '15

Industries

Detroit's great growth due to its open shop policy. *L. W. Moffett. Iron Tr R* 67:143-7 J1 15 '15

Lighting

Detroit's municipal lighting plant. *T. Wilson. Il plan Power* 40:832-5 D 15 '14

Railroads

Economic value of terminal improvements at Detroit. *Ity Age* 59:739-40 O 22 '15
Station and office building of the Michigan Central railroad at Detroit. *Il Arch & Bldg* 47:53-60 F '15

Rapid transit

Detroit purchase negotiations. *Elec Ity J* 45:725 Ap 10 '15
Detroit's urban transportation needs—present and future—set forth. *Eng Rec* 71:127-8 Ap 3 '15
Report on Detroit traffic. *Elec Ity J* 45:664-5 Ap 3 '15

Streets

Methods and cost of removing an asphaltic macadam road surface, reworking the old material and relaying it as asphaltic concrete. (3. C. Dillman. *Il diag Eng & Contr* 42:532-3 D 9 '14

Water supply

Municipal pumping stations of Detroit. *T. Wilson. Il Power* 41:150-3 F 2 '15

Detroit, Toledo & Ironton railroad

Abstract of annual report. *Ity Age* 59:847 N 5 '15

Detroit United railway

Detroit municipal ownership proposal. *Elec Ity J* 45:431 F 27 '15
Statement of income, profit and loss. *Elec Ity J* 45:436-7 F 27 '15

Dextrin

Modification of starch by gaseous hydrochloric acid. *E. C. Frary and A. C. Dennis. J Ind & Eng (Chem)* 7:211-18 Mr '15

Diabetes

Diabetic triad. *Sci Am* 113:244 S 18 '15

Dials. See Sundials

Diamond drilling. See Drilling and boring (earth and rocks)

Diaphragm method

Diaphragm method for the measurement of water in open channels of uniform cross-section. *C. L. Weidner. bibliog Il Wis U Bul Eng S* 8:1-72 no 1 '14; *Excerpts. Eng N* 72:532-4 S 10 '14; *Eng & Contr* 42:414-15 O 28 '14

Diatasees

Quantitative extraction of diatasees from plant tissues. *R. W. Thatcher and G. P. Koch. Am Chem Soc J* 36:2642-3 D '14

Didymium

Fractional crystallization of the pterates of the rare earths of the didymium group. *L. M. Dennis and F. H. Rhodes. Am Chem Soc J* 37:807-15 Ap '15

Die casting

Aluminum die casting a commercial achievement. *C. Pack. Metal Ind n* 13:412-13 O '15; *Same. Foundry* 43:456-7 N '15; *Same. Iron Tr R* 67:1036-7 N 25 '15; *Same cond. Iron Age* 96:820 O 7 '15

Aluminum die castings. *A. B. Norton. Metal Ind n* 13:503-4 D '14

Die-casting of white alloys. *J. C. Work. Sch Mines Q* 36:48-50 N '14

Die casting: the metal, its use and the gas appliance used. *C. E. Chapple. Il Am Gas Light J* 102:52-3 Ja 25 '15; *Same Metal Ind n* 13:62-3 F '15

Die casting vs. machining. *J. E. Schipper. Il diag Automobile* 33:451-4 S 9 '15
New die casting metal; Ampco bronze. *Met & Chem Eng* 18:931 D 1 '15
Plating of the troublesome die-castings. *S. Herriek. Metal Ind n* 13:373-4 S '15
Precision castings. *M. Buckingham. Il diag Metal Ind n* 13:11-13 Ja '15
Successful nickel plating of die castings or articles made from sheet zinc. *C. H. Proctor. Metal Ind n* 13:274 J1 '15

Die holders

Forms of die holders. *diag Metal Ind n* 13:100-1 Mr '15

Die-sinking machines

Jackson duplex die-sinking machine. *Il diag Mach* 21:928-9 J1 '15

Dielectrics

Dielectric properties of different insulating materials; abstract. *K. W. Wagner. diag Elec W* 65:1044-5 Ap 24 '15

Effect of transient voltages on dielectrics. *E. W. Peck, Jr. Il Am Inst E* 19 Pro 34:1695-1747 Ag '15

Insulating properties of solid dielectrics. *II. L. Curtis. diag U S Bur Stand Bul* 11:359-420 My 10 '15; *Excerpt (Volume resistivity table). Elec R & W Elec N* 66:171 Ja 23 '15

Investigation of dielectric losses with the cathode ray tube. *J. P. Minton. Il Am Inst E* 19 Pro 34:1115-65 Jo '15; *Abstract. Elec W* 66:66 J1 10 '15

Law of corona and spark-over in oil. *E. W. Peck, Jr. Gen Elec R* 18:821-7 Ag '15

Volume resistivity and surface resistivity of insulating materials. *II. L. Curtis. diag Gen Elec R* 18:996-1001 O '15

Dies

Automatic indexing multiple drawing die. *J. M. Stibel. Il diag Mach* 21:915-16 J1 '15

Building precise dies on a rush order. *Il Iron Age* 95:1082-3 My 13 '15

Deep drawing in combination dies. *Il diag Mach* 21:663-4 Ap '15

Dies for drawing flanged shells. *E. P. Davis. diag Mach* 21:532-4 Mr '15

Dies for drop-forged die hardeners and users. *W. L. Goodrich. Mach* 21:453 F '15

Establishing number of operations for drawing cylindrical shells. *E. J. W. Sparkuhl. Mach* 21:720-32 My '15

Forging machine dies. *J. Lee. diag Ry Age (Mech ed)* 89:37 Ja '15

Forging machine dies. *J. W. McDonald. Il diag Ity Age (Mech ed)* 88:639-40 D '14

Making a ribbed die. *J. Leafstrom. diag Mach* 21:744 My '15

Mechanical production of drop forging dies. *W. K. Hammond. Il Mach* 22:1-5 S '15

Method for making and using forging dies. *C. Doewer. diag Mach* 21:581-2 Mr '15

New method of polishing diamond die. *diag Mach* 21:279 D '14

Push and die standards. *W. K. Hammond. diag Mach* 22:137-40 O '15

Rectangular drawing and trimming. *J. M. Stibel. diag Mach* 22:44-7 S '15

Repairing cracked dies. *R. J. Albrecht. diag Mach* 22:9 S '15

Small aluminum tubes. *J. P. Sheehy. Il diag Metal Ind n* 13:55-6 F '15

Three recently developed die heads. *Il Iron Age* 95:134 Ja 14 '15

Tube forming die. *A. H. Wilson. diag Mach* 21:666-7 Ap '15

Universal link-cutting die. *B. Gelat. diag Mach* 22:160-1 S '15

See also Metal work; Punching machinery; Sheet metal work

Diesel engines

Alk-Chalmers oil engine. *Il diag Munic J* 38:905 Ja 24 '15

American Diesel engines; summary of different types. *Iron Age* 96:1170 N 18 '15

Breakdown of a Diesel engine at Oxford. *Engineer* 119:337 Ap 2 '15

Cracked and seized pistons on Diesel engines. (2. *R. Windler. diag Power* 42:210-11 Ag 10 '15; *Abstract. Int Marine Eng* 20:416 S '15

Diesel and semi-Diesel engines. *Iron Age* 96:746-7 S 30 '15

Diesel engines—Continued

- Diesel engine and its applications in southern California. W. H. Adams. *diag* Am Soc M E J 37:621-8 N '15; *Excerpts*. Iron Age 96: 1818-14 D 2 '15; *Discussion*. Am Soc M E J 37:699-703 D '15
- Diesel-engine central station at Winchester, Ind.—cost of equipment. T. Wilson. *il* Power 41:562-4 Ap 27 '15
- Diesel engine day at the Panama-Pacific international exposition. Iron Age 96:111-11 8 '15
- Diesel engine defended. R. W. Crowley. *Power* 41:413 Mr 23 '15
- Diesel engine for the contractor—why not? H. D. Hammond. *il* Eng Rec 71:409-10 Mr 27 '15
- Diesel engine in America. M. Rotter. *diag* Power 42:524-7 O 12 '15
- Diesel-engine installation at Palo Alto. H. Haas. *il* Power 41:502-4 Ap 13 '15
- Diesel engine users' association. *diag* Engineer 120:86 J1 23 '15
- Diesel engines for generator drive. C. Le-grand. *Am Inst E E Pro* 34:1815-18 Ag '15
- Diesel principle applied to small engines. *il* *diag* Power 41:162-5 F 2 '15
- Diesel-type engine in the United States. R. W. Crowley. *Klee W* 65:412-14 F 13 '15
- Diesel-type oil engine in European repute. R. W. Crowley. *Klee W* 65:665-7 Mr 13 '15
- Fairbanks-Morse internal-combustion engine. *il* Eng & Min J 100:358 Ag 28 '15; *Power* 42: 550-1 O 19 '15
- Heavy oil engine, its present status and future development. A. H. Goldingham. *il* *diag* Am Soc M E J 37:628-36 N '15; *Excerpts*. Iron Age 96:1313-15 J1 2 '15
- How to select your prime mover. G. Misk. Iron Tr R 57:569-72 J 8 23 '15
- Large four-cylinder vertical Diesel engine of the Busch-Sulzer brothers-Diesel engine company, St. Louis. *il* Klee W & W Elec'n 66:41-2 Ja 2 '15; *Klee W* 64:1217 J1 19 '14
- McIntosh & Seymour 500-hp. Diesel engine. F. L. Low. *il* *diag* Power 42:740-5 N 30 '15
- 1000 h.p. Diesel engine; abstract. J. Cochand. *diag* Am Soc M E J 37:115 F '15
- Panama-Pacific exposition. F. L. Low. *il* *diag* Power 42:261-6, 290-3, 341-2 Ag 21-S 7 '15
- Performance of Diesel engine pumping equipment of the Applon, Wis., water works. *il* plan Eng & Contr 44:244-6 S 29 '15
- Reliability of Diesel engine doubted. R. Mueller. *Eng Rec* 71:500 Ap 17 '15
- Results of Diesel-engine operation at Hutchinson, Minn. T. Pitts. *il* Klee W 66:1029 N 6 '15
- Southwark-Harris Diesel engine. *il* *diag* Power 41:877-9 Je 29 '15
- Southwark-Harris valveless engine. *il* Eng M 49:sup5-6 Ap '15
- Swedish type Diesel engine. *il* Iron Tr R 57: 988 N 18 '15
- Torsional oscillations of an engine shaft; abstract. O. Mies. *diag* Am Soc M E J 37:406-7 J1 '15
- Two-stroke-cycle semi-Diesel engines. *diag* Klee W 65:679 Mr 13 '15
- Vertical two-stroke-cycle Diesel engines. *il* Klee W 65:1303 My 8 '15
- Manufacture**
- Manufacture of the Diesel engine; production processes and the plant of the Busch-Sulzer bros., St. Louis. C. J. Abell. *il* *diag* plan Iron Age 95:57-64 Ja 7 '15
- Testing**
- Test of new type prime mover; Southwark-Harris crude oil engine. *il* Iron Tr R 57:274-5 Ag 5 '15
- Tests on a Diesel engine; abstract. W. S. Burns. *il* Am Soc M E J 37:552-5 Ja '15
- Tests on Diesel engines when running light; abstract. A. Balog. Am Soc M E J 37:404-6 J1 '15
- Diesel engines, Marine**
- Craig Diesel type marine oil engine. *il* *diag* Int Marine Eng 20:217-18 My '15
- Defects and remedial of marine Diesel motors. T. I. Grainger. *Int Marine Eng* 20:316-17 J1 '15
- Diesel engine applied to marine purposes. C. Kloss. *il* *diag* Power 42:734-8 N 23 '15
- Diesel engine propelled ship, Pacific; abstract. W. Kaemmerer. Am Soc M E J 37:601-2 O '15
- Diesel motor tug Chickamauga. G. E. Nicholson. *il* Int Marine Eng 20:493-5 N '15
- Doxford Diesel engine. Engineer 118:599-600; 119:4-6 D 25 '14-Ja 1 '15
- First government-built Diesel engines. *Power* 42:738 N 23 '15
- Large Diesel engine ships for marine navigation and their economic possibilities; abstract. W. Scholz. Am Soc M E J 37:228-30 Ap '15
- Machinery of modern submarines. A. P. Chalkley. *il* Sci Am 113:236+ J1 3 '15
- Marine semi-Diesel engines. Sci Am S 80:287 O 30 '15
- Modern submarines in war and peace. S. Lake. *il* *diag* Int Marine Eng 20:450-6 O '15
- Oil and suction producer gas engines for ship propulsion; abstract. Am Soc M E J 37:602 O '15
- Operation of a marine Diesel engine. R. N. Percy. *Int Marine Eng* 20:209-11 My '15
- Performance of Diesel-engined motor ships. *Int Marine Eng* 20:381 S '15
- 60 horsepower Nisco Diesel engine. *il* Int Marine Eng 20:522-3 N '15
- Submarine power plant. A. Hicar. *il* Sibley J 30:59-63 N '15
- Thermodynamics of the marine engine; abstract. J. P. Wentworth. *Int Marine Eng* 20:17 Ja '15
- Two- vs. four-stroke-cycle marine Diesel engine. G. C. Davidson. *Power* 42:564-5 O 19 '15
- Diet**
- Food for polar explorers. M. Shackleton. Sci Am S 79:36-7 Ja 16 '15
- How much albumen is needed in our diet? M. Hindrichs. Sci Am S 79:327 My 22 '15
- Iodo salts for soldiers. Sci Am 113:358 O 23 '15
- Vitamins and cooking. D. McCaskey. Sci Am 113:379 O 30 '15
- Vitamins, and their importance for the maintenance of health. Dr. Reinhardt. Sci Am 113: 238-9 S 11 '15
- See also* Nutrition
- Digestion**
- Physiological activity of combined hydrochloric acid. J. H. Long. Am Chem Soc J 37:1333-47 My '15
- See also* Enzymes; Mastication
- Digestive ferments**
- Comparison of methods for the determination of the proteolytic activity of pancreatic preparations. J. H. Long and A. W. Barton. Am Chem Soc J 36:2151-66 O '14
- Dikes (engineering)**. *See* Embankments
- Dimethylpyrone**
- Organic azetium compounds; dimethylpyrone-hydrochloride. H. N. K. Ibrahim. Am Chem Soc J 37:557-67 Mr '15
- Dimmers**. *See* Electric lamps, Tungsten—Control
- Dining car chairs**
- Canadian Northern dining car chairs. *diag* Ry Age (Mech ed) 89:300 Je '15; *Ry Age* 50:272 Ag 13 '15
- Dining cars**
- Steel passenger equipment for the Union Pacific. *il* *diag* Ry Age 58:1475-9 Je 25 '15
- See also* Buffet cars
- Dinitrotyrosine**
- Studied on nitrated proteins; the synthesis of 3,5-dinitrotyrosine. T. R. Johnson and E. E. Kohnmann. Am Chem Soc J 37:2164-70 S '15
- Dinosaurs**
- Tyrannosaurus, a cretaceous carnivorous dinosaur. R. Brown. *il* Sci Am 113:322-3 O 9 '15
- Dip needle surveying**. *See* Magnetic surveying
- Diphenylureachloride**
- Action of diphenylureachloride on organic bases. W. M. Behn and E. M. Platt. Am Chem Soc J 37:2122-30 S '15
- Dipotassium phosphate**
- Conductivity study of the reaction between calcium nitrate and dipotassium phosphate in dilute solution. W. A. Withers and A. L. Fidd. Am Chem Soc J 37:1091-1105 My '15

Dippers. See Buckets**Dipping fluids**

Sheep dips in Uruguay. H. L. Spahr. *Textile World* 48:594 Mr '15

Dipping fluids, Arsenical

Blood-charcoal as a purifying agent for arsenic solutions previous to titration. R. M. Chapin. *J Ind & Eng Chem* 6:1002-3 D '14

Directories

Portland street corner directories. Munic J 39:7 J 1 '15

Dirigibles. See Balloons and airships**Disasters**

See also Eastland (steamship)

Discount

Annulment and bond discount. R. J. Bennett. *J Account* 19:405-34; 20:1-20 Je-Jl '15

Cash discount. S. Walton. *J Account* 19:385-90 My '15

Discount on stock. S. Walton. *J Account* 20:238-41 S '15

Tyranny of the engraver. A. S. Little. *J Account* 20:186-202 S '15

Discoveries in science. See Science**Diseases**

Diseases dangerous at different periods of life. *Sci Am* 8 79:149-50 Mr 6 '15

See also Tuberculosis; Typhoid fever; also subhead Diseases under various subjects, e.g. Nervous system—Diseases

Diseases, Industrial

Nystagmus (trembling of the eyes) of the miners. *Colliery* 35:505 Ap '15

Intilids conditions on the land. A. C. Key. *Eng & Min J* 99:28-9 Ja 2 '15

Recognizing vocations from the teeth. *Sci Am* 8 79:300 My 8 '15

See also Brass founders' ague

Diseases of metals. See Metals Diseases**Dishwashing machines**

Crescent electric dishwasher. *El Elec R & W Elec'n* 66:702-3 Ap 10 '15

Heavy-service electric dish washer. *El Elec W* 66:110 N 13 '15

Disinfection and disinfectants

Destruction of flies and disinfection. *Sci Am* 8 80:112 Ag 14 '15

Disinfection of swimming pools with copper sulphate. *Sci Am* 8 80:352 N 27 '15

Steam disinfection for sewage on common carriers. *Engng Rec* 71:43 Ja 9 '15

Sterilizing cutting oils. P. J. Artale. *Iron Age* 95:482 P 25 '15

Up-to-date disinfection. *Sci Am* 113:004 Jo 19 '15

See also Antiseptics; Ozone

Dislocations

Device for treatment of dislocated and fractured lower limbs. *Sci Am* 113:364-7 O 23 '15

Dissociation

Can the dissociation theory be applied to solid solutions in steels? G. D. Campbell. *Am Chem Soc J* 37:2039-46 S '15

Densities and degrees of dissociation of the saturated vapors of the ammonium halides, and the related thermal data. A. Smith and R. H. Lombard. *Am Chem Soc J* 37:38-70 Ja '15

Dissociation of hydrogen into atoms. I. Langmuir. *Am Chem Soc J* 37:417-58 Mr '15

Dissociation of hydrogen into atoms. I. Langmuir and G. M. J. Mackay. *Am Chem Soc J* 36:1708-22 Ag '14

Electron conception of valence; the theory of electrolytic dissociation and chemical action. K. G. Falk and J. M. Nelson. *Am Chem Soc J* 37:1732-48 J 1 '15

See also Chemistry, Physical; Electrochemistry; Electrolysis; Electrolytes; Electrons

Distearin

Phosphates of 2,3-distearin. R. R. Renshaw and R. R. Stevens. *Am Chem Soc J* 36:1770-2 Ag '14

Distillation

Adjustable burner support for condensation apparatus. H. E. Bishop. *Il J Ind & Eng Chem* 7:693 Ag '15

Advantageous form of still for the exact measurement of boiling point during fractional distillation. T. W. Richards and F. Barry. *Il Am Chem Soc J* 36:1787-91 Ag '14

Analytical distillation of petroleum. W. F. Hoffman and E. W. Dean. *Engng J Ind & Eng Chem* 7:185-95, 751-60 Mr, S '15

Destructive distillation of Pacific coast kelps. D. H. Hoagland. *J Ind & Eng Chem* 7:673-4 Ag '15

Distillation of water. G. W. McKee. *Il Am Gas Light J* 102:404-7-1-10 Ja 28 '15

Distilled feed water. C. F. Hirschfeld. *Engng M* 49:724-30 Ag '15

Emergent stem correction for thermometers in cresote oil distillation flasks. R. M. Wilhelm. *Engng U S Bur Stand Tech Pa* 49:1-21 '15

Experiments on the distillation of liquid air in a magnetic field. R. S. McBride. *Am Chem Soc J* 37:1715-18 J 1 '15

Fractional distillation with regulated still-heads: cases in which the boiling-point curve passes through a maximum or a minimum. M. A. Rosanoff and C. W. Bacon. *Engng Am Chem Soc J* 37:301-9 P '15

Fractional distillation with regulated still-heads: distillation of ternary mixtures. M. A. Rosanoff, J. F. W. Schulze, and R. A. Dunphy. *Am Chem Soc J* 37:1072-9 My '15

Improved form of Kjeldahl distillation apparatus. A. D. Holmes. *Il Engng J Ind & Eng Chem* 6:1010-12; 7:693-4 D '14, Ag '15

Kjeldahl distillation apparatus. J. M. Pickel. *Il J Ind & Eng Chem* 7:787-9 S '15

Manufacture of gasoline by cracking heavy oils. *Sci Am* 8 79:283 My 1 '15

Method of finding the partial from the total vapor pressures of binary mixtures, and a theory of fractional distillation. M. A. Rosanoff, C. W. Bacon, and J. F. W. Schulze. *Am Chem Soc J* 36:1993-2004 O '14

New water still. *Il Engng Met & Chem Eng* 12:796 D '14

Partial vapor pressures of ternary mixtures of toluene, carbon tetrachloride and ethylene bromide. M. A. Rosanoff, J. F. W. Schulze, and R. A. Dunphy. *Am Chem Soc J* 36:2480-95 D '14

Pressure distillation of petroleum hydrocarbons. A. P. Bergegarand. *Il Engng J Ind & Eng Chem* 7:573-7 J 1 '15

Separation of gases by fractional distillation in a vacuum at low temperatures. G. A. Burrell and L. W. Robertson. *J Ind & Eng Chem* 7:209-10 Mr '15

Study of the reaction of alkali salts of sulfonic acids with alkali phenolates by dry distillation. B. H. Nollan and L. C. Daniels. *Am Chem Soc J* 36:1885-91 S '14

Topping plants of California. A. E. L. Bell. *Il Engng Am Inst Min E Bul* 105:1769-99 S '15; Discussion. 108:2426 D '15

Two convenient forms of receiver for fractional distillations under diminished pressure. M. T. Bogert. *Engng J Ind & Eng Chem* 7:786-9 S '15

Water-distilling apparatus. C. E. Anderson. *Plan Power* 40:285 D 15 '14; *Munic Eng & Min J* 99:150 Ja 16 '15

Water distilling apparatus. *Il Met & Chem Eng* 13:704 O 1 '15

See also Coal distillation; Coal-tar products; Essential oils; Pent distillation; Wood distillation

Distilled water. See Water, Distilled**Distortion factors**

Distortion factors. F. Hedell, R. Town and C. L. Swisher. *Am Inst E Bul* 105:1059-73 Je '15; Abstract. *Engng M* 49:7-8 J 1 '15

District heating. See Heating from central stations**District heating association, National.** See National district heating association**Dithiourimido-acetylacetone**

Constitution of the so-called dithiourimido-acetylacetone. W. J. Hale. *Am Chem Soc J* 37:1544-52 Je '15

Diving, Submarine

- All-metal diving dress. *Il* *diag* *Eng* *118*: 554-5 D 11 '14
 Deep diving experiments and the records at Honolulu. *Eng* *N* 73:796 Ap 23 '15
 Effect of pressure on the diver. *Il* *Sci* *Am* 113: 61+ J1 17 '15
 Raising the F-4. J. F. Springer. *Il* *Sci* *Am* 112:356+ Ap 17 '15
 Salvage work on the Empress of Ireland. R. C. Skerrett. *Il* *plan* *diag* *Int* *Marine* *Eng* 20: 60-2 F '15

Dixie highway

- Governors to control Chicago-Miami road. *Horseless* *Age* 35:457 Ap 7 '15

Docks

- Balboa docks. *Il* *Sci* *Am* 112:48 Ja 9 '15
 Barge canal terminal. *Il* *diag* *Int* *Marine* *Eng* 20:114 M '15
 Concrete cribs used successfully in dock construction at Victoria. *Il* *diag* *plans* *Eng* *Rec* 72:165-7 Ag 7 '15
 Concrete pile and cylinder foundations at Charleston. *Il* *diag* *Eng* *N* 74:926-9 N 11 '15
 Jacksonville municipal docks nearing completion. *Eng* *N* 74:1099 D 2 '15
 Kiel; its naval and engineering features. A. W. Metcalfe. *diag* *Engineer* 120:50-2 J1 16 '15; *Same* *cond.* *Sci* *Am* 84:234 O 9 '15
 Municipal dock for St. Louis, Mo. *Eng* *N* 74: 1101 D 2 '15
 New coal dock for the Cincinnati, Hamilton & Dayton at Toledo. *Il* *plan* *Ity* *Age* 53:273-4 Ag 13 '15; *Same*. *Ity* *It* 57:256-8 Ag 21 '15; *Same* *cond.* *Eng* *Rec* 72:163-4 Ag 7 '15
 New graving dock at South Shields. *Il* *diag* *plan* *Engineer* 120:154-6, 158 Ag 13 '15
 Pearl harbor dry dock. F. R. Harris. *Eng* *Rec* 71:57-8 Ja 9 '15
 Pearl harbor dry dock; abstract. H. R. Stanford. *Am* *Soc* *M* 13 J 37:413-11 J1 '15
 Pennsylvania coal dock at Sandusky. *Il* *plan* *Ity* *Age* 57:1189-91 D 25 '14
 Plan for building Pearl harbor drydock near Honolulu. *Il* *diag* *Rec* 71:82-4 Ja 16 '15; *Eng* *N* 73:88-9 Ja 14 '15
 Repairs to the gates at the 70-foot entrance to the Tyne docks. *Il* *Engineer* 120:412, 418 O 29 '15
 Toledo coal dock built in record time. *Il* *plan* *Eng* *N* 74:520-2 S 9 '15
 Torpedo-boat berth at the Charleston navy yard. *Il* *plan* *Eng* *N* 74:872-3 N 4 '15
 Two new Crandall railway dry docks. *Il* *Int* *Marine* *Eng* 20:166-7 Ap '15
See also Freight handling; Harbors; Ports; Wharves

Domes

- Concrete dome for the new Technology buildings, Cambridge, Mass. *Il* *Eng* *N* 74:385-6 Ag 26 '15
 Design of 152-foot steel-framed dome. A. W. Earl and T. F. Chace. *Il* *diag* *Eng* *Rec* 70: 451-4, 482-4 O 24-31 '14; *Same*. *Eng* & *Contr* 42:314-20 S 30 '14
 Designing a steel dome for the horticulture palace at the Panama-Pacific International exposition. A. W. Earl and T. F. Chace. *diag* *Eng* *N* 74:208-12 J1 29 '15
 Framing of the dome of the palace of horticulture at the Panama-Pacific International exposition. A. W. Earl and T. F. Chace. *Il* *diag* *Eng* *N* 74:112-15 J1 16 '15
 New Traymore hotel at Atlantic City. *Il* *diag* *Eng* *N* 74:21-2 J1 1 '15
 Octagonal framed dome, San Francisco auditorium. *Il* *diag* *Eng* *N* 73:773-5 Ap 22 '15
See also Roofs

Domestic appliances

- Domestic fuel appliances from the consumer's point of view. *Am* *Gas* *Light* *J* 102:70-1, 74-6 F 1 '15

See also Gas appliances**Domestic engineering**

- Science of domestic engineering. T. J. Claffy. *Dom* *Eng* 70:7-8 Ja 2 '15

See also Building; Heating; Lighting; Plumbing; Sanitary engineering; Ventilation**Domestic engineering (periodical)**

- 25th anniversary of Domestic engineering. J. K. Allen. *Dom* *Eng* 69:885-8 D 20 '14

Domestic science

- Measurements for the household. *Il* *U* *S* *Bur* *Stand* *Circ* 55:1-149 '15; *Abstract* (*Efficiency in the household*). H. T. Wade. *Sci* *Am* 113: 448-9 N 20 '15

See also Apartment houses; Diet; Electricity in the home; Food; Fuel; Furniture; Gardens; Heating; House decoration; Kitchens; Laundry; Menu cards; Sanitation; Ventilation**Dominican republic**

- Minerals of Santo Domingo. F. L. Garrison. *Il* *Eng* & *Min* *J* 99:641-4 Ap 10 '15

Doors

- Electric control for doors. *Il* *Elec* *W* 68:1049 N 6 '15
 Modern sliding parlor door. C. J. C. Phillips. *diag* *Eng* *Age* 37:49-51 Je; 29-30 J1 '15
See also Architecture; Screen doors

Doorways

- Colonial architecture in Connecticut. W. S. Russell. *Il* *diag* *Arch* *Rec* 38:672-80 D '15
 Door guard for motor trucks. *diag* *Ind* *Eng* 15:73 Ag '15
 Doorway, Bartlet-Atkinson house, Newburyport, Mass., built in 1805, measured and drawn by G. Robb, Brickb 24:pl 10 O '15
 Entrance detail, Escuelas Menores, Salamanca, Spain erected in the XVth century. *Il* *Brickb* 24:266 N '15
 Modern colonial doorways. B. Griswold. *Il* *Arch* *Rec* 38:216-52 Ag '15

Dorr agitator

- Feasibility of continuous causticizing. *Il* *Met* & *Chem* *Eng* 13:514-15 Ag '15
 Use of hydrometallurgical apparatus in chemical engineering. J. V. N. Dorr. *Il* *J* *Ind* & *Eng* *Chem* 71:29-30 F '15; *Same*. *Met* & *Chem* *Eng* 13:97-8 F '15

Dorr classifier

- Use of hydrometallurgical apparatus in chemical engineering. J. V. N. Dorr. *Il* *diag* *Met* & *Chem* *Eng* 13:55-9 Ja '15; *Same*. *J* *Ind* & *Eng* *Chem* 71:19-22 F '15

Dorr thickener

- Arizona copper co.'s Dorr thickener. D. Cole. *Il* *diag* *Eng* & *Min* *J* 100:131-4 J1 24 '15
 Intermittent discharge on Dorr thickener. *Eng* & *Min* *J* 100:539 O 18 '15
 Use of hydrometallurgical apparatus in chemical engineering. J. V. N. Dorr. *Il* *diag* *J* *Ind* & *Eng* *Chem* 71:23-6 F '15; *Same*. *Met* & *Chem* *Eng* 13:91-4 F '15

Double houses

- Double house for a 50 ft. lot. *Il* *plans* *Ind* *Age* 37:42-4 N '15

Douglas fir

- Distillation of Douglas fir at high temperatures. B. Tremper. *J* *Ind* & *Eng* *Chem* 7: 826-7 N '15
 Douglas fir for paving blocks. O. P. M. Goss. *Eng* *N* 74:774-6 O 21 '15
 Protect against condemnation of treated Douglas fir. E. M. Horrocks. *Eng* *Rec* 71:107 Ja 23 '15

Draft

- Air intakes increase furnace capacity. *diag* *Elec* *Ity* *J* 46:541-2 S 25 '15
 Draft in furnaces and flues. E. C. Bailey. *diag* *Power* 42:638-42 N 9 '15
 Draft readings on a Stirling boiler. S. H. Viall. *diag* *Power* 41:44-5 Ja 12 '15
 Measurement of draft. C. F. Hirschfeld. *diag* *Power* 42:370-2 S 14 '15
 Study of draft in boilers. C. F. Hirschfeld. *diag* *Power* 42:198-7 Ag 10 '15
 What causes faulty chimney draft. *Il* *diag* *Metal* *Work* 84:577 N 5 '15
 Why's of boiler draft. C. F. Hirschfeld. *diag* *Power* 41:675-8 My 18 '15
See also Chimneys; Dampers; Firing; Locomotives—Draft; Mechanical draft; Mine ventilation; Ventilation

Draft, Mechanical. See Mechanical draft**Draft gages**

- Ellison combination differential draft gage. *Il* *Power* 41:229 F 16 '15
 Recording power plant operations. J. C. Smallwood. *Il* *diag* *Eng* *M* 50:41-3 O '15

Draft gears

- Cost of maintenance of equipment: a record of the Waugh draft gear. *Ity* 11 56:66-7 Jan 9 '15
 Draft gear problem. *It* V. Crandall. *Ity* Ago (Mech ed) 88:612-13 D '14
 Draft gear problem. *It* A. Murray. *diag* *Ity* Ago (Mech ed) 89:498 O '15
 Friction spring draft gear. *diag* *Ity* Ago 58: 832 Ap 16 '15
 New York municipal car--draft gear. *diag* *Ity* Ago 44:1380-1 D 28 '14
 Record of cost of maintaining car draft appliances. *Ity* 11 56:291 P 27 '15

Draft tubes. See Turbines**Drafting boards**

- Drafting table for fieldwork. *C. P. Bernard*. *It* Eng & Min J 100:394 S 4 '15
 Field drafting table. *W. L. Webb*. *diag* *Eng* N 73:828 Ap 29 '15
 Method of holding long drawings. *J. B. Nelson*. *diag* *Mach* 22:63 S 15
 Simplex parallel attachment. *It* *diag* *Mach* 21:102-2 Ag '15

Drafting instruments. See Drawing instruments**Drafting room practice**

- Automobile drafting room. *E. W. Weaver*. *It* *diag* *Harrows* Ago 31:222-4, 256-8, 297-8, 332-5, 368-70 Ag 5-8 2 '14
 Camera, the pantograph. *H. A. Williamson*. *diag* *Colliery* 35:288-91 Jan '15; *Excerpt*. *Eng* M 48:901-3 Mr '15
 Checking drawings--how and why. *C. P. Scribner*. *Mach* 22:143 O '15
 Drafting room reform. *E. H. Fish*. *diag* *Eng* M 48:752-5 P '15
 Sectional views of ribs and symmetrical parts. *C. L. Svensen*. *diag* *Mach* 21:790-1 Jo '15
See also Drawing instruments; Machinery--Design; Mechanical drawing

Drafts

- Cheques and drafts. *S. Walton*. *J Account* 20: 230-3 S '15

Draftsmen

- Underrated contributor to steel construction; the detailer. *H. Fleming*. *Eng* N 71:653-1 S 30 '15

Drain tile

- Advertising and selling methods for concrete drain tile manufacturers. *J. J. Connors*. *Concrete* *Cem* 7:27-8 J1 '15
 Investigation of the durability of cement drain tile in alkali soils. *H. J. Wig* and *G. M. Williams*. *diag* *Pla* U S Bur Stand Tech Pa 44:1-56 '15; *Abstract*. *J* *Inst* 179:351-6 Mr '15; *Abstract*. *Eng* *Rec* 72:220 Ag 21 '15; *Excerpt*. *Concrete* *Cem* 7:145-7 O '15
 Investigation of the effects of alkali on concrete drain tile near Lake Park, *Ill*. *C. E. Sims*. *Concrete* *Cem* 6:278-81 Jo '15
 Proposed standard specifications and recommended practice for drain tile and tile drain construction. *Eng* & Contr 42:181-3 Ag 19 '14
 Sewer tile of concrete. *B. B. Hood*. *It* *Eng* & Min J 100:188 J1 31 '15
 Size of drain tile as determined by Maryland experience. *J. R. Hawwell*. *Eng* & Contr 44:60 J1 21 '15
 Subdrainage of brick-paved streets. *Lakewood*. *Ohio*. *It* A. Fisher. *diag* *Eng* N 74:557-8 S 18 '15
 Tile drains instead of small culverts on highways. *E. O. Nelson*. *Eng* N 73:1083-4 Jo 3 '15

Drainage

- Combination concrete road and flood channel. *Los Angeles county, Calif.*. *R. Bennett*. *It* *diag* *Eng* N 73:42-3 Ja 7 '15
 Construction methods and plant for diversion and drainage works for Little River drainage district in Missouri. *Eng* *Rec* 70:612-14 D 5 '14
 Cost of and profits from tile underdrains. *R. D. Marsden*. *Eng* & Contr 44:21-2 J1 7 '15
 Cost of drainage pumping in southern Louisiana. *C. W. Okey*. *Eng* N 74:738-5 O 14 '15
 Design of drainage ditches, with diagrams. *W. H. Poo*. *Eng* & Contr 43:439-41 My 18 '15
 Difficulties of drainage-ditch contractors. *Eng* N 73:632-3 Ap 1 '15
 Ditch digging by blasting. *F. W. Wilson*. *It* *Eng* & Contr 44:150 Ag 25 '15

- Drainage pumping plant with variable-speed drive. *It* *diag* *Eng* N 74:581-3 S 23 '15
 Draining a swamp by air lifts. *Eng* & Min J 100:402 S 4 '15
 Draining embankments in Missouri. *It* *Ity* Ago 58:1138-9 Jo 18 '15
 Draining land by wells; concrete drain head. *diag* *Eng* N 72:1169 D 10 '14
 East side levee and sanitary district. *T. N. Jacob*. *It* *diag* *Assn* *Eng* *Soc* J 55:1-11 J1 '15
 Excavating machinery used in land drainage. *D. L. Yarnell*. *bibliog* *It* *diag* *U S Agric* *Bul* 300:1-39 '15
 Excavating plant for heavy drainage work in Arkansas. *It* *Eng* *Rec* 71:11 Jan 9 '15
 Formula for computing the run-off depth to be expected from any simple drainage area. *S. W. Prescott*. *Eng* & Contr 44:22 J1 7 '15
 How Carson lake was drained. *H. C. Westep*. *map* *Iron* *Tr* R 56:128-9 Jan 14 '15
 Largest electric drainage pumping plant. *A. M. Shaw*. *Eng* N 74:801-5 O 21 '15
 Little River drainage district. *map* *Eng* N 73:519-21 Mr 18 '15
 Maintenance of drainage ditches. *Eng* N 73: 881-2 My 6 '15
 Method and cost of making a drainage survey for the Washington Bayou drainage district, Mississippi. *C. W. Mellin*. *map* *Eng* & Contr 44:92-5 Ag 4 '15
 Method of computing run-off in draining irrigated lands. *H. C. Miller*. *Eng* & Contr 44: 150-1 Ag 25 '15
 New type of gate for regulating adjacent water levels operates automatically. *diag* *Eng* *Rec* 71:301-5 Mr 6 '15
 Novel method of draining a swamp for an earth fill. *It* *Eng* N 71:897 N 4 '15
 Plans for a typical condition of Mississippi bottom land drainage. *map* *Eng* & Contr 43: 490-1 Jo 2 '15
 Reducing the cost of drainage excavation. *Eng* *Rec* 70:693-4 D 26 '14
 River improvement for public health reclaiming 10,000 acres of fertile land. *It* W. Sherman. *It* *map* *Eng* *Rec* 71:738-9 Jo 12 '15
 Unwatering Carson lake. *L. L. Dayenport*. *It* *map* *Eng* & Min J 98:1065-70 D 19 '14
 Why drainage of irrigated lands is necessary, and how the problem is handled. *D. W. Murphy*. *It* *Eng* *Rec* 72:356-8 J1 10 '15; *Abstract*. *Eng* M 50:464-5 D '15
See also Drain tile; Irrigation; Mine drainage; Roads--Drainage; Sewerage

Drainage, House

- Modern design in house drainage systems. *A. J. McGookin* and *W. H. Cramer*. *diag* *Metal* *Work* 83:769-71 My 28 '15

Draughting room practice. See Drafting room practice**Drawbacks**

- More liberal drawback laws required. *It* *W* 65:254 Jan 23 '15

Drawbridges

- Automatic drawbridge signal. *diag* *Eng* *Rec* 70:690 D 19 '14
 Canadian Pacific draw span over the Lachine canal. *It* *Ity* Ago 59:239 Ag 6 '15
 Center bearing, machinery and gates, Congress street swingbridge. *Troy*. *N. Y.* *diag* *plan* *Eng* N 73:804-5 Ap 29 '15
 Congress street bridge across the Hudson river at Troy, N. Y.; structural features. *It* W. Hodge. *diag* *Eng* N 73:574-5 Mr 25 '15
 Design, construction and detailed costs of the Richelieu river bridge, Lacolle Junction, Quebec. *It* *diag* *Eng* & Contr 42:542-6, 585-9 D 9, 23 '14
 Double-dock swingbridge floated in place. *It* *Eng* N 74:437 S 2 '15
 Draw span of Harlem river bridge floated to place. *It* *Eng* *Rec* 72:258-9 S 4 '15
 Electricity in construction of new Portland, Me., bridge. *It* *W* *Eng* N 67:229 Ag 7 '15
 Energy required for turning a 310-ft. bridge across the Harlem river. *It* *W* 65:567 O 18 '15
 New bridge of the Chicago, Burlington & Quincy R. R. over the Missouri river at Kansas City, Mo. *diag* *Eng* & Contr 44:170 S 1 '15

Drawbridges—Continued

- New swing bridge over the Nile at Cairo. *Il* Eng & Contr 120:270-2, 274 S 17 '15
Removable fixed bridge. *Il* Eng N 73:1226-7 Je 24 '15
Renewing heavy swing span by floating into place; old North Western bridge in Milwaukee removed and new span weighing 800 tons placed in one day. *Il* plan *Ity* Arg 58:836-8 Ap 16 '15

See also Bridges, Bascule; Bridges, Lift

Drawing

See also Architectural drawing; Design, Decorative; Geometrical drawing; Mechanical drawing; Perspective; Topographical drawing

Drawing, Mechanical. See Mechanical drawing

Drawing, Topographical. See Topographical drawing

Drawing Instruments

Combination drafting instrument. *Il* Iron Age 95:1402 Je 24 '15

Involute gear tooth forming device; simple method of laying out a template or forming cutter. *C. Lauck*, *diag*s Mach 21:716-17 My '15

Drawing room practice. See Drafting room practice

Dredges

Dredges and dredging operations. *Int* Marine Eng 20:238-9 Je '15

Electric hydraulic dredge for Chuyahoga river improvements. *Il*, *Flas*, *Il* Eng & Contr 43:110-11 F 3 '15; Same. *Int* Marine Eng 20:245-6 Je '15

Electric suction dredge with special cutter for gumbo. *Il* Eng N 73:220-1 F 4 '15

Electrically operated hydraulic dredge. *Eng* N 73:889 My 6 '15; *Il* *Int* Marine Eng 20:251-2 Je '15

Flume-type elevator dredges in Alaska. *I*, *Il*, *Jeddy*, *Il* Eng & Min J 99:1129-30 Je 26 '15

42-inch hydraulic dredge *Foyers*, *Il* *Int* Marine Eng 20:256-7 Je '15

Four-yard government dipper dredges. *Il* *Int* Marine Eng 20:247-9 Je '15

Government dredges for improving the Arkansas river. *Il* *Int* Marine Eng 20:252-3 Je '15

Latest United States dredges. *P. M. Bruner*, *Il* *Int* Marine Eng 20:240-3 Je '15

Most powerful dipper dredge in the world: *Gambou* and *Paraiso*, *Il* *Int* Marine Eng 20:254-5 Je '15

Pump and cutter of electric dredge. *Il* Eng N 73:1079 Je 3 '15

Recent Joliet pipe line and sea-going hydraulic dredges. *Il* *Int* Marine Eng 20:253-4 Je '15

Reconstruction of *U. S.* dredge *Barnard*, *J. L. Peyton*, *Il* *Int* Marine Eng 20:244 Je '15

Semi-blower engines and locomotives for Alaskan dredges. *Il* Eng & Min J 99:644 Ap 10 '15

Steam-electric-driven dredge for the Philippines. *Il* Eng & Min J 99:898-900 My 22 '15

10-yard dipper dredges on the Cape Cod canal. *Il* *Int* Marine Eng 20:255-6 Je '15

Twin-screw bucket ladder dredge and a single-screw hopper barge for *Tasmanian*, *P. C. Coleman*, *Il* *Int* Marine Eng 20:250-1 Je '15

Typical ships. *Il* plan (supp) *Eng* 118:573-5 D 18 '14

See also Snag boats

Dredging

Cost data on the work of improving the *Napomnet* river in *Massachusetts*, *R. M. Blake*, *Il* Eng & Contr 43:34-6 Ja 13 '15

Cost of electric dredging for land reclamation, *San Diego*, *Cal*, *L. L. W. Allison*, *Eng* & Contr 44:96-6 Ag 4 '15

Dredge dipper rigged as drag. *O. S. Proctor*, *Il* Eng Rec 71:119-20 Ja 23 '15

Dredging sudd on the river Nile. *Il* Eng N 73:513-14 Mr 18 '15

Dredging work on the Panama canal slides. *W. G. Comber*, *Il* maps Eng N 73:753-7 Ap 22 '15

Filling and dredging for a *Jersey City* freight terminal. *Il* diag map Eng N 73:1216-18 D 17 '14

Resolving dredged areas in *Victoria*, *Eng* & Min J 98:1136-7 D 26 '14

See also Gold dredging

Dredging machinery

Gravel dredge which delivers graded materials. *A. Gottschalk*, *Il* Eng Rec 70:652 D 12 '14

Minneapolis dredging pump operates electrically. *Il* Eng Rec 72:136-7 J1 31 '15

Oil-engine dipper dredge. *Il* Eng N 73:173 Ja 28 '15

Special cutter head on dredge working in hard material. *J. E. Gundolfo*, *Il* Eng N 74:990 N 18 '15

See also Dredges; Excavating machinery

Drilling and boring (earth and rocks)

Difficulties overcome in sinking a deep well. *P. B. Green*, *diag* Eng N 74:450-2 S 2 '15

Drill outfit for light blast holes and for rock soundings. *Il* *diag* Eng Rec 71:725-6 Je 5 '15

Drilling for oil. *Sci* Am S 80:199 S 25 '15

Drilling 30-in. wells for irrigation. *Il* Eng N 73:924-5 My 13 '15

Evolution of drilling rigs. *Il*, *B. Woodworth*, *Il* *diag* Am Inst Min 10 Bul 107:2247-2312 N '15

Heavy deep bore hole. *R. B. Wilson*, *Colliery* 26:90-1 S '15

Improved methods of deep drilling in the *California* oil field. *M. J. Lombardi*, *Il* *diag* Am Inst Min 10 Bul 98:209-15 F '15

Modern rotary drill. *Il*, *J. Hughes*, *Il* *diag* Am Inst Min 10 Bul 99:629-35 Mr '15; Same cond. *Eng* N 73:928-9 My 13 '15; Abstract. *Ind* Eng 15:59-60 F '15; Abstract. *Colliery* 35:522 My '15; Discussion. *Am Inst Min* 10 Bul 101:1163 My '15

Portable drilling rig on road and street work—performance records in cutting trenches and cleaning reservoirs. *Il* *Munic* Eng 49:123-4 S '15

Rock work in coal mines. *Il* *diag* *Colliery* 35:237-40 D '14

Sampling of churn-drill prospect holes. *J. C. Moser*, *diag*s Eng & Min J 100:301-4 Ag 21 '15

Scheme of diamond drilling at *White Pine*, *Eng* & Min J 100:878 O 23 '15

Subaqueous rock excavation. *C. C. Phelps*, *Il* *diag*s Eng N 74:908-73, 1020-4, 1062-7 N 18 '15

Successful winter drilling on the *barge canal*. *W. R. Brown*, *diag* Eng N 74:366-7 Ag 5 '15

Sullivan air-fed drifter. *Il* Eng & Min J 100:887 N 27 '15

Tripod for handling long drill-steel. *L. B. Relfenelder*, *Il* Eng & Min J 99:490 Mr 13 '15

Use of mud-laden water in drilling wells. *L. N. Knapp*, *diag*s Am Inst Min 10 Bul 96:2783-93 D '14; Discussion. 101:1151-7 My '15

Wash borings and in railroad valuation work. *Il* Eng Rec 71:776 Ja 19 '15

See also Rock drills; Shaft sinking

Cost

Churn-drilling costs. *C. H. Palmer, Jr.*; *H. P. Bowen*, *Eng* & Min J 99:20-1 Ja 2 '15

Churn-drilling costs, *Sacramento* hill, *Arizona*. *A. Notman*, *Il* map Am Inst Min 10 Bul 104:1677-90 Ag '15

Comparative costs of rotary and standard drilling. *M. L. Roqua*, *Am Inst Min* 10 Bul 98:217-19 F '15; Summary. *Eng* N 73:943 My 13 '15

Cost of drilling with well drilling machines in ore prospecting. *C. H. Palmer, Jr.* Eng & Contr 43:202-3 Mr 3 '15

Drilling costs in potash prospecting. *R. M. Froe*, *Eng* & Min J 100:108-9 J1 17 '15

Method and cost of making test borings for the *Winnipeg* Shoal lake aqueduct. *D. L. McLean*, *Il* *diag*s Eng & Contr 43:316-18 Ap 7 '15

Tests of rock drills at *North Star* mine, *California*. *Il*, *H. Bedford* and *W. Hague*, *Il* Am Inst Min 10 Bul 92:1807-16 Ag '14; Same cond. Eng & Min J 98:255-7 Ag 8 '14; Same cond. Eng Rec 70:374 O 3 '14; Same cond. Eng & Contr 42:463-5 N 11 '14; Excerpt. Eng & Min J 98:439 S 5 '14; Discussion. Am Inst Min 10 Bul 95:2750-1 N '14

Drilling and boring (metal working, etc.)

Cost of drilling anchor-bolt holes for the Quebec bridge. C. C. Phelps. *Il Eng N* 73:219 F 4 '15

Drill fixtures for motor truck parts. C. T. Schaefer. *diag* Horseless Age 34:818-19 D 2 '14

Drilling speeds. *Mach* 21:410-11 Ja '15

Speed record in drilling. *Il Mach* 21:305-6 D 14

See also Machine shop practice

Drilling and boring machinery

Adjustable-apindle boring machine. *Il Iron Age* 95:995 My 6 '15

Automatic machine for dishing drills. *Il Iron Age* 95:720 Ap 1 '15; *Iron Tr R* 55:680 Ap 1 '15

Automatic power feed drilling machine of the Cincinnati pulley machinery company. *Il Iron Age* 94:1291 D 3 '14

Auxiliary drilling machine heads. *Il Iron Age* 95:291 F 4 '15

Boring four-spindle drill. *Il diag Mach* 22:151-5 O '15

Boring machine for car wheels. *Il Iron Tr R* 55:1180 D 24 '14

Center head boring mill. *Il Iron Age* 95:236-7 Ja 28 '15

Clearance drills for counter-sinking holes. J. M. Stibel. *Mach* 21:1005-6 Ag '15

Close quarter drill. *Iron Tr R* 55:233 Ag 5 '15

Cutter and keyseat drill. *Il Ity Age (Mech ed)* 89:486 S '15

Doing the work on all-geared pump drills. *Il diag Mach* 21:740 2 My '15

Double economy in power feed drill. *Il Automobile* 32:465 Mr 11 '15

Drill jig for machining half holes. *diag Mach* 21:106 Ja '15

Drill motor extensions. V. T. Kropidkowski. *diag Ry Age (Mech ed)* 89:579 N '15

Drill press tools. A. A. Bertrand. *diag Mach* 21:282 Ag '15

Drilling a deep hole. D. A. Hampson. *Il diag Mach* 21:1012-13 Ag '15

Drilling cutter pin holes. *Il Mach* 21:68 Ap '15

Electrical appliances for workshops. *Il Engineer* 119:516 Je 4 '15

Facing tool for drilling machines. *Il Iron Age* 95:293 Ja 7 '15

Gang drilling machine for structural steel. *Il Eng N* 74:1056 N 26 '15

Heavy cutting on a boring mill. A. A. Dowd. *diag Iron Tr R* 55:281-3 F 4 '15

Heavy duty drill press. *Il Iron Tr R* 55:1107 Je 3 '15

Heavy duty radial drilling machine. *Il Iron Age* 95:237 Ji 29 '15

Heavy multiple drilling machine developed by the National automatic tool company, Richmond, Ind. *Il Iron Age* 94:1277 D 3 '14

High speed bench drill. *Il Ind Eng* 11:406-7 O '14

High-speed drill with greater twist. *Iron Age* 95:895 Ap 22 '15

High speed radial drill. *Il Ity Age (Mech ed)* 89:590 N '15

How the chisel point of a drill wears. R. Pollakoff. *Il Mach* 21:567-8 Mr '15

Improved radial drilling machine, made by Kendall & Gent, Ltd., Manchester. *Il Engineer* 118:538 D 4 '14

Langsdorf shrapnel machines. *Il Mach* 21:674-5 Ap '15

Locomotive frame drill. *Il Ity Age (Mech ed)* 88:649-50 D '14

Machine for boring driving boxes. E. C. Gahm. *Il Ity Age (Mech ed)* 89:138-9 Mr '15

Micrometer dials for an old boring mill. W. Whitley. *diag Mach* 22:62 S '15

National-Acme single and multiple drilling machines. *Il Mach* 22:147-51 O '15

New portable electric drill. *Il Elec R & W Elec'n* 66:37-8 Ja 2 '15

Niles-Rement-Bond boring mill. *Il Mach* 21:510-11 F '15; *Ry Age (Mech ed)* 89:543 O '15

Pipe drilling machines. *Il Iron Age* 94:1490 D 31 '14; *Iron Tr R* 55:1179 D 24 '14

Portable Scotch radial drilling machine. *Il Iron Age* 95:980 O 25 '15

Quick change sensitive drilling machine. *Il Iron Age* 94:1528 D 21 '14

Quick speed changes in new drill press. *Il Automobile* 32:122 Mr 1 '15

Radial drilling machine of the Willmarth tool works. *Il Iron Age* 94:1487 D 31 '14; *Iron Tr R* 55:1227-8 D 31 '14; *Mach* 21:430-1 Ja '15; *Ity Age (Mech ed)* 89:45-6 Ja '15

Radial drilling machine with 2-ft. arm. *Il Iron Age* 95:923 O 21 '15

Rapid automatic drill. *Il Iron Tr R* 55:1184 D 21 '14

Reboring air pump cylinders. J. A. Jesson. *diag Ry Age (Mech ed)* 89:138 Mr '15

Rockford auxiliary drill heads. *Il Mach* 21:517-18 F '15

Rockford box column upright drilling machine. *Il Iron Age* 95:215 Ji 29 '15; *Mach* 21:1022-3 Ag '15

Semi-automatic four-spindle drill press. *Il diag Iron Age* 95:711-5 S 30 '15

Ship machine co.'s sensitive drill press. *Il Mach* 21:427 S Ja '15

Special system of boring tools. *Il Iron Age* 95:521 S 2 '15

Test of electric drilling machines. *Il Iron Age* 95:1241 N 25 '15

Tool for reboring cylinders run by air boring machine. W. Hazore. *Il Eng Rec* 72:239 Ag 21 '15

Twin machines for Packard rear axles. *Il Automobile* 32:681 Ap 15 '15

Twist drill design. E. C. Peck. *Mach* 22:64 S '15

Two new electric tools; combination upright drilling and bench printing machine and high speed drill. *Il Iron Age* 95:1006-7 My 6 '15

Two useful types of boring bars. E. Server. *diag Mach* 22:59 S '15

See also Boring; Machine tools; Reamers

Testing

Test of drills for cast iron. A. W. Brayshaw. *Engineer* 119:62 Ja 15 '15

Drinking fountains

Apparatus for detanking water. R. W. Palmer. *Il diag Elec Ry J* 16:281 Ap 11 '15

Drinking fountain for a mine. D. E. Charlton. *diag Eng & Min J* 100:677 S O 25 '15

Going after tanking fountain business. *Il Metal Work* 83:18-9 Ja 1 '15

Insensitive drinking fountain guard. *Il Elec Ry J* 16:156 Ji 21 '15

Sanitary drinking fountain for passenger cars. *Il Ry Age (Mech ed)* 89:17 Ja '15; *Same, Ry Age* 55:139-40 Ja 22 '15

Waste-preventing fountain for drinking and horse watering. Pomerville, Miss. F. E. Merrill. *Il Eng & Contr* 42:400 N 18 '14

Drinking water system. *See* Water supply for factories

Driving boxes. *See* Locomotives; Driving boxes

Drop head. *See* Kubbisauri

Drops

Law of efflux of drops from capillary orifices; abstract. E. Vaillant. *Am Soc M* 16 J 37: 407-8 Ji '15

Drug trade

British India. *Il M Sp Conn Rep* 72:286-9 '15

War and our chemical industries. C. A. West. *J Ind & Eng Chem* 7:61-2 Ja '15

Drugs

Contributions of the chemist to the manufacture of pharmaceutical products. E. R. Eldred. *J Ind & Eng Chem* 7:539-40 N '15

See also Drug trade; also special drugs and groups of drugs, e.g. Anesthetics

Analysis

Studies in synthetic drug analysis. W. O. Emery and S. Polkin. *J Ind & Eng Chem* 6:845-9, 761-3; 7:519-21 A-M '14, Je '15

Studies in synthetic drug analysis; estimation of phenacetin and salol in admixture. W. O. Kirtley, C. C. Spencer and C. C. Lockbrey. *J Ind & Eng Chem* 7:681-4 Ag '15

Drunkennes. *See* Temperance

Drury, F. E.

Residence of F. E. Drury, Mar., Cleveland, Ohio. L. T. Frary. *Il plans Arch Rec* 88:601-14 D '15

Dry blast process

Blast-furnace plant auxiliaries and general arrangement; dry blast. J. B. Johnson, Jr. *diag* Met & Chem Eng 13:429-39 J1 '15
 Thermal principles of the blast furnace. J. B. Johnson, Jr. *Met & Chem Eng* 13:718-20, 787-92, 838-40, 905-10, 954-62 O 15-D 15 '15

Dry cleaning. See Cleaning**Dry docks. See Docks****Dry goods**

See also Hosiery; Textile industry and fabrics

Dry rot

Dry rot in factory timbers. F. J. Hoxie. *Eng Rec* 71:336-7 Mr 13 '15
 Prevention of dry rot in mill buildings. F. J. Hoxie. *Eng Rec* 71:400-1 Mr 27 '15
 Protecting wooden buildings from dry rot. *Eng N* 73:498 Mr 11 '15

See also Wood preservation

Drying

Comparison of the relative drying powers of sulfuric acid, calcium chloride and aluminum trioxide when used in ordinary Schenckler desiccating jars. J. W. Marden and V. Elliott. *J Ind & Eng Chem* 7:320-1 Ap '15
 Drying properties of linseed oil treated with cobalt, lead and manganese elcaostearates. L. B. Wise and R. A. Duncan. *J Ind & Eng Chem* 7:202-5 Mr '15

How producer gas is used for drying molds and cores and for heating index in English foundries. *Eng Foundry* 43:229-30 Je '15

Using electricity to dry clothes of outside workers. *Eng W* 66:869 O 16 '15

See also Coal drying; Drying apparatus; Lumber drying

Drying apparatus

Automatic sand dryer. *Eng Rec* 71:464-5 S 11 '15
 Drying high-tension transformers with steam heat. *diag Eng W* 65:676 Mr 13 '15
 Drying iron ore on the Mesabi range. R. J. Collins. *Eng & Min J* 99:696-7 Ap 17 '15
 Drying large transformer units electrically. *Eng W* 65:736-7 Mr 20 '15
 Drying sand in 7-yd. batches. *diag Eng Rec* 71:461-3 J1 31 '15
 Troughton dryer. *Eng Min J* 98:83 Ja 21 '15
 Norfolk & Western humidity-controlled dry kiln for lumber. W. L. Lewis. *Eng Rec* 71:461-3 J1 31 '15
 Oil burning sand dryer. F. C. Lester. *diag Eng Rec* 71:461-3 J1 31 '15
 Quick-closing door for pressure cylinders. *Eng Rec* 71:461-3 J1 31 '15
 Scientific clothes dryer. *Eng Metal Work* 83:508 Ap 23 '15

Drying apparatus (for textile fabrics)

Electric garment dryer conserves health and schedules. *Eng Rec* 71:461-3 J1 31 '15
 Science and the tariff: apparatus employed in determining customs duties. R. B. Pickrell. *Eng Sci Am* 8:79:169 Mr 27 '15
 Scientific drying. *Textile World* 50:110-12 O '15
 Scientific drying of textile materials. *Textile World* 49:528-9 Ag '15
 Thermal efficiency of cloth drying. C. H. Perkins. *plan Textile World* 48:594-6 Mr '15

Dual personality. See Personality**Dumdum bullets. See Bullets****Dump cars**

Comparative cost of handling earth on flat and air dump cars. *Eng Rec* 71:444-5 Je 18 '15
 Improved turntable for contractor's dump cars. *diag Eng N* 73:988 My 20 '15
 Kangaroo refuse-elevating and dump car. *diag Eng N* 73:1040 My 27 '15
 Two-way dump cars. *Eng Rec* 71:45:299-300 F 6 '15

Dumping appliances

Ash and refuse dumping board. West 77th st., North river, New York city. C. W. Staniford. *diag Eng N* 73:166-7 Ja 28 '15
 Car dumper at Conneaut, Ohio. *Eng Rec* 71:276 Ag 28 '15
 Car dumping machine with improved features at Conneaut Harbor, Ohio. *Eng Rec* 71:276 Ag 28 '15

Car dumping machines on the Hocking Valley Ry.'s coal dock, Toledo, Ohio. *Eng Rec* 71:276 Ag 28 '15
 Rapid car dumping plant, Toledo, O. *Eng Rec* 71:276 Ag 28 '15
 Refuse dumped from the cart to scow without scattering. *Eng Rec* 71:276 Ag 28 '15

See also Dump cars

Duplex houses

Two-family frame houses. *Eng Rec* 71:37-8 S 15 '15
 Two-family house built of hollow tile. E. G. Zorn. *Eng Rec* 71:37-8 S 15 '15

Duplex process. See Steel metallurgy**Durant, Oklahoma****Sewerage**

Electrolytic sewage treatment plant at Durant, Oklahoma. W. L. Benham. *Eng Rec* 71:40:141-6 O '15

Durax pavement. See Pavements, Granite**Dust**

Dust and bacteria content of city air. M. C. Whipple. *Heat & Vent* 12:27-33 S '15
 Dust; what it is, what it does. W. Swaine. *Sci Am* 8:80:102-3 Ag 14 '15
 Studies in air cleanliness. C. C. Whipple and M. C. Whipple. *Heat & Vent* 12:23-8 J1 '15

See also Coal dust; Rock dust

Dust collectors. See Dust removal**Dust prevention**

Dust prevention and street cleaning. W. H. Connell. *Good Roads* 1:9:103-8 Mr 6 '15
 Dust suppression and street cleaning in Philadelphia. W. H. Connell. *Good Roads* 1:9:103-8 Mr 6 '15
 Method of applying oil for dust prevention. *Eng & Contr* 43:435-6 My 12 '15
 Methods of applying tar for dust prevention. *Eng & Contr* 43:445-6 My 19 '15
 Progress reports of experiments in dust prevention and road preservation, 1914. U S Agric Bul 257:1-44 '15
 Surface oiling of city streets. T. R. Agg. *Mun J* 38:653-4 My 13 '15

See also Floors, Concrete

Dust removal

British Portland cement making machinery. *Eng Rec* 71:120:104-5 J1 30 '15
 Cloth screen dust separator. *Eng Foundry* 43:331 Ag '15; *Iron Age* 96:303 Ag 5 '15; *Metal Ind* 1:13:341 Ag '15
 Cyclone or centrifugal separator designs. *diag Metal Work* 84:56-1 J1 9 '15
 Exhaust system in pattern shop. *Eng Metal Work* 84:441 O 1 '15
 Factory exhaust systems. *Metal Work* 84:23-3 J1 2 '15

Flaming dust collecting system. W. C. Hannan. *Eng Rec* 71:120:104-5 J1 30 '15

How state laws compel removal of dust. L. C. Enton. *Eng Foundry* 43:43-51 F '15; *Same. Iron Tr R* 56:415-23 F 25 '15

Investigations on the nature and elimination of odors and dust from a garbage reduction plant. H. W. Mahr and A. C. Kraft. *Eng Rec* 71:778-85 H '15

Pattern for spiral strips in dust separator. *diag Metal Work* 84:369-70, 645-6 S 17, O 29 '15

Solution of smoke, fume and dust problems by electrical precipitation. L. Bradley. *Met & Chem Eng* 13:911-14 D 1 '15

Suggestions for installing and testing factory exhaust systems. *Heat & Vent* 12:47-8 S '15

See also Air washers; Electric precipitation; Waste removal

Dwight-Lloyd process

Mechanical progress of sintering. B. G. Klugh. *diag Iron Tr R* 57:835-8+ O 28 '15; *Same. Iron Age* 96:1000-4 O 28 '15; *Discussion. H. A. Brassart. Iron Tr R* 57:845 O 28 '15; *Discussion. R. E. Brooke. H. A. Brassart. Iron Age* 96:1004-5+ O 28 '15
 Salda smelter. F. D. Weeks. *Am Inst Min E Bul* 104:1691-5 Ag '15; *Excerpts (Dwight-Lloyd sintering practice at Salda, Colo.) Eng & Min J* 100:312 Ag 21 '15

Dye houses

Concrete tanks for dye-houses, I. C. Wason; W. M. Kinney. *Concrete Cem* 6:169 Mr '15
Concrete tanks for dye houses, H. H. Newman. *Concrete Cem* 7:32 J1 '15

Dye industry

Alternatives in case of a dyestuff famine. *Sci Am* 8 80:192 S 18 '15
American dye making. *Textile World* 49:275-6 My '15
Aniline dye situation, I. F. Stone. *Met & Chem Eng* 13:663-71 O 1 '15; *Excerpts. Textile World* 50:67-9 O '15
Artificial organic dyes. *Sci Am* 8 80:141 Ag 28 '15
British dye scheme criticised. *Textile World* 49:276-7 My '15
British national dye scheme, D. G. Anderson. *J Ind & Eng Chem* 7:538-41 Je '15
Contributions of the chemist to the industrial development of the United States: a record of achievement, B. C. Hesse. *J Ind & Eng Chem* 7:297-301 Ap '15; Same. *Sci Am* 8 79:234-5 Ap 10 '15; Abstract. *Met & Chem Eng* 13:287-8 My '15
Developer situation. *Textile World* 48:522-3 F '15
Development of the dye industry. M. L. Crossley. *Sci Am* 112:577-1 Je 5 '15
Development of the use of natural dyestuffs, E. S. Chapin. *Textile World* 49:338-9 S '15
Dyestuff famine. T. H. Norton. *Il Sci Am* 113:400-1, 427-1 N 6-13 '15
Dyestuff industry. *Sci Am* 8 79:336 My 22 '15
Dyestuff problem in England. *Textile World* 48:334-6, 383-5 D 14-Ja '15
Dyestuff situation. *Textile World* 48:557-9; 49:61-3 Mr-Apr '15
Dyestuff situation and its lesson, A. B. Little. *J Ind & Eng Chem* 7:237-9 Mr '15; Same. *Sci Am* 8 79:278-9 My 1 '15
Dyestuff situation in the United States, T. H. Norton. *Textile World* 49:307-10 Je '15
Dyestuff situation—much smoke but no fire. *Am Gas Light J* 103:297 N 8 '15
Dyestuff situation—papers and discussion before the New York section of Society of chemical industry. *Met & Chem Eng* 13:779-82 N 1 '15
Dyestuffs and the Department of commerce. *Textile World* 50:147-9 N '15
Dyestuffs for American textile and other industries, T. H. Norton. map U 8 Bur For & Dom Com 96:1-57 '15
Emergency meeting of hosiery manufacturers. *Textile World* 50:63-5 O '15
Facts about the color shortage. *Inland Pr* 56:59 O '15
Foreign markets for American chemicals, T. H. Norton. *Met & Chem Eng* 13:760-2 O 15 '15
German investments in the dyestuff industry. *Sci Am* 8 80:101 Ag 14 '15
Government-owned dyestuff works in Great Britain. *Textile World* 48:371-3 Ja '15
Hearing on the Patke patent bill. *Textile World* 48:468-75 F '15
High explosives vs. dyestuffs. *Textile World* 48:528-9 F '15
Intermediate products for the dye industry. *Am Gas Light J* 102:139 Mr 1 '15
International chemical industry. *Engineer* 119:681-2 Je 25 '15
Let us forget! Who killed Cock Robin? The U. S. tariff-history of coal-tar dyes, B. C. Hesse. *J Ind & Eng Chem* 7:694-709 Ag '15; *Excerpts. Textile World* 49:593-6 S '15
Mobilization of American dye makers. *Sci Am* 113:392 N 6 '15
Preparing for a famine in dyestuffs. *Textile World* 48:402-4 J1 '15
Present dyestuff situation, E. C. Kilstedt. *Textile World* 49:185-90 My '15
Printers' colors and war munitions. *Inland Pr* 56:337-9 D '15
Proposed British dyestuff industry: a German opinion on Great Britain's prospects, O. N. Witt. *Met & Chem Eng* 13:248-9 Ap '15
Protection in England. *Textile World* 48:465-6 F '15
Relation of the dyer to the manufacturer. F. L. Lotte. *Textile World* 50:195-6 N '15
Report of committee of the National association of cotton manufacturers on dyestuffs. *Textile World* 49:311-13 My '15

Secretary Redfield's preliminary report on the artificial dyestuff industry. *Textile World* 48:571-3 Mr '15

Selected quotations bearing on dye shortage from daily papers Aug. 15, 1914 to Feb. 20, 1915. *J Ind & Eng Chem* 7:302-4 Ap '15
Synthetic dyestuffs and our explosives. T. J. Parker. *J Ind & Eng Chem* 7:272-3 Ap '15
Two problems of the coal tar dye industry. B. C. Hesse. *Textile World* 49:225-8 My '15
Who killed Cock Robin? notes on the tariff history of coal-tar dyes. *Sci Am* 8 80:135 Ag 28 '15

See also Coal tar colors

Dye testing

Paint and dye testing; use of the white flame arc as a standard. W. R. Mott. *Sci Am* 8 80:350-2 N 27 '15

Dyeing machines

Circulating dyeing machine. *diag Textile World* 49:120-1 Ap '15
Circulating liquor in dyeing machines. *diag Textile World* 50:113-15 O '15
Dyeing process. *diag Textile World* 49:364-5 Je '15
Giles yarn dyeing machine. *diag Textile World* 48:332-4 D 15 '14
Hurricane rotary-circulating machine for bleaching and dyeing. *Il Textile World* 49:580 Ag '15
Improved dyeing machine. *diag Textile World* 48:622 Mr '15
Improved tension device for the Giles dyeing machine. *Il Textile World* 49:560-1 Ag '15
Klauder-Weldon skein dyeing machine. *Il Textile World* 48:355-8 Ja '15

Dyes and dyeing

Azoindole dyestuffs. *Textile World* 50:231-4 N '15
Color blending and shade matching. J. Brown. *diag Textile World* 48:527-8 F '15
Coloring principle of myrian rubin its azo-, indole and nitro-dyestuffs, S. Matow. *J Ind & Eng Chem* 7:113-15 F '15
Colors for tropical countries. *Textile World* 48:601 Mr '15
Dye receipts. See monthly numbers of *Textile world*, beginning December, 1914
Dyeing hair cloth. *Il Textile World* 49:348-9 Je '15
Dyeing hosiery. *Textile World* 50:39 S O '15
Dyestuffs for American textile and other industries, T. H. Norton. map U 8 Bur For & Dom Com 96:1-57 '15
Lowwood dyes. *Textile World* 49:548-9 Ag '15
Manufacture of Turkey-red oil from fatty acids. W. J. Schupp. *J Ind & Eng Chem* 7:805 S 15
Modern mordant dyeing. *Textile World* 48:618-20 Mr '15
Natural dyes as substitutes for coal tar colors. *Textile World* 48:236-8, 336-336a, 428-9 N 14-Ja '15
New process of vat dyeing. *Textile World* 50:116-17 O '15
Notes on dyeing oxidation aniline black. *Textile World* 50:226-8 N '15
Revival of the use of natural dyestuffs, E. S. Chapin. *J Ind & Eng Chem* 7:675-8 J1 '15
Same cond. *Textile World* 49:219-23 My '15
Staining of cotton and wool mixed goods. *Textile World* 48:524-6 F '15
Temperature coefficients and the effects of acids, bases and salts in reaction velocities of the triphenylmethane dyes, H. C. Hiddle and C. W. Porter. *Am Chem Soc J* 7:1571-89 Je '15

See also Bleaching; Coal tar colors; Dyeing; Dye industry; Dyeing machines; Logwood

Cost

Labor cost of dyeing cotton yarns, L. J. Matow. *Textile World* 48:625-6 Mr '15

Cotton

Aftertreatment of cotton goods, L. J. Matow. *Il Textile World* 49:468-80 J1 '15
Aniline black on cotton hosiery, E. C. T. Bick. *Textile World* 48:523-4 F '15
Dyeing of military khaki. *Textile World* 48:424-6 Ja '15

Dyes and dyeing—Cotton—(Continued)
 Dyeing with vegetable and mineral dyestuffs. Textile World 49:549-51 Ag '15
 Silicate of soda in dyeing cotton. A. Bolls. Textile World 49:117-19 Ap '15

Silk

Dyeing artificial silks. E. C. T. Bick. Textile World 49:119-20 Ap '15

Wool

Blacks on medium weight wool goods. Textile World 48:330-2 D '14

Dyeing and finishing wool fabrics. F. Sudler. diag Textile World 49:365-8 Je '15

Dyestuffs. See Dye industry; Dyes and dyeing

Dynamics

Apparatus for demonstrating Newton's laws. H. W. Harmon. diag Sci Am S 79:42-3 Ja 16 '15

See also Force and energy; Hydrodynamics; Thermodynamics

Dynamite

Dynamite does not shoot down. Colliery 35: 546-7 My '15

Dynamite safely removed from missed holes with air. Eng Rec 72:303-4 S 4 '15

Explosives used in war and metal mining. P. E. Barbour. Eng & Min J 100:508-11 S 25 '15

Dynamo-electric machines. See Dynamoes; Electric motors

Dynamometer cars

Dynamometer car development. Ity R 56:768-9 Je 5 '15

Dynamometer car for the Japanese government railways. M. C. Schmidt. It plans Ity R 56:182-6 F 6 '15; Same. Ity Ago (Mech ed) 89:66-70 F '15

Dynamometer cars for the Southern railway. It diag plan Ity R 56:583-8 My 1 '15

Dynamometers

Junkers dynamometer. It diag Power 42:447-8 S 28 '15

Dynamos

Air cleaning apparatus for the ventilation of generators and transformers. W. Baum. It diag Gen Elec R 18:801-12 Ag '15

Air filters for turbo-generators. It diag Engineer 119:36-7, 31-3 Ja 8, 22 '15

Air-gap flux induction in dynamo-electric generators. A. Still. diag J Fr Inst 179:21-46 Ja '15

Analysis of unbalanced three-phase systems. L. G. Stokvis. Elec W 66:111-15 My 1 '15

Calculation of sudden short circuit phenomena of alternators. N. S. Mamant. diag 6 pls Am Inst E M Pro 84:2043-79 S '15

Census of generating equipment. Elec W 65: 201-2 Ja 30 '15

Characteristics of the three-wire generator: analysis of its behavior when used as a balancer in a direct-current lighting system. O. J. Ferguson. diag Elec W 64:1199-1204 D 19 '14

Classification of electromagnetic machinery. F. Greedy. diag Am Inst E M Pro 34:1399-1423 J1 '15; Abstract. Elec W 66:62 J1 10 '15

Currents induced in the shafts of dynamo-electric machines; abstract. P. Girault. Elec W 66:250 J1 31 '15

Delta-cross connections of transformers for parallel operation of two- and three-phase systems. (3.) P. Roux. diag Am Inst E M Pro 34:1683-94 Ag '15

Designing small dynamos and motors. (3.) K. Krauss, jr. diag Sci Am S 80:304-6 D 4 '15

Developments in electrical apparatus during 1914. J. Linton. It Gen Elec R 18:80-3 F '15

Diesel engines for generator drive. C. Le-grand. Am Inst E M Pro 34:1815-18 Ag '15

Direct-connected exciters. It Elec R & W Elec'n 67:342 Ag 21 '15

Dynamos: inventions. W. Weston. J Ind & Eng Chem 7:250-1 Mr '15

Effect of field-coil reversals. E. C. Farham. Elec W 66:643 S 18 '15

Electric generators. 1. M. Tieldt. It diag Horseless Age 35:544-8, 578-81 Ap 21-28 '15

Gear-driven continuous current turbo-generator. It Engineer 119:608 Je 18 '15

Heating of generator bearings. Elec R & W Elec'n 66:78-9 Ja 9 '15

How the compounding effect of interpole generator showed up in parallel operation. E. C. Farham. Elec W 66:1206 N 27 '15

Improved ventilation of generator permitted a 28 per cent greater load. diag Elec W 66:976 O 30 '15

Incremental armature copper losses at no-load and armature teeth eddy-current losses. A. Press. diag Inst E E J 53:820-3 Je 15 '15

Inherent regulation of synchronous alternating-current generators. A. Still. diag Inst E E J 53:587-97 Ap 15 '15

Large-sized generator for gas-steam set. It Elec W 65:819-20 Mr 27 '15

Laws of induction; abstract. A. E. Clayton. diag Elec W 66:652 S 18 '15

Low-voltage direct-current generators. G. Fox. diag Power 40:804-5 D 8 '14

Mechanical effects of electrical short-circuits. S. H. Weaver. Gen Elec R 18:1066-74 N '15

Mechanical forces in circuits carrying heavy currents; abstract. P. V. Hunter. Elec W 64: 1259 D 26 '14

Parallel operation of alternating current generators driven by internal combustion engines; factors affecting generator design. It E. Doherty. Gen Elec R 18:167-73 Mr '15

Parallel operation of frequency changers. (3.) H. Kettow. diag Gen Elec R 18:836-8 Ag '15

Radio generator for amateurs. F. E. Ward. It Sci Am S 80:336 J1 17 '15

Space distribution of flux density. A. Still. Elec W 65:1679-82 Je 26 '15

Spray-type air washers and coolers for New York station. It diag Elec W 65:349-50 F 6 '15

Starting an old dynamo. G. E. Miles. Power 41:688-9 My 18 '15

Supplying air to generators at constant temperature and humidity. It diag Elec W 66:92 J1 10 '15

Swiss turbo-generator sets. It Engineer 119: 304-6 F 26 '15

Test for dirt in an air supply. S. A. Moss. It Gen Elec R 18:622-5 J1 '15

Testing the air supplied to turbo-generators. Engineer 120:139-40 Ag 6 '15

Transient phenomena in coils with capacity between turns; abstract. K. W. Wagner. Elec W 65:858-9 Ap 3 '15

Triple-frequency currents in delta-connected generator. diag Elec W 65:1240 My 15 '15

Unequal air gap. P. Justus. diag Power 41: 619 My 4 '15

Ventilating requirements of vertical water-wheel generators. Elec W 66:301 Ag 7 '15

See also Armatures; Commutators; Electric motors; Switchboards

Testing

Efficiency test on a large alternator. J. H. McDougall. Power 41:86-7 Ja 19 '15

E

Earth

Earth considered as a heat engine. G. F. Becker. Sci Am S 79:391 Je 19 '15

Electric waves and oscillations; means of investigating the interior of the earth. G. Lombach. Sci Am S 79:154-5 Mr 6 '15

Tides in the earth's crust and the elasticity of the globe. A. Bergel. Sci Am S 79:382-3 Je 12 '15

See also Earthquakes; Geological time; Geology

Rotation

Watching the earth revolve: an apparatus that enables the movements of the earth to be directly studied. A. H. Compton. It Sci Am S 79:196-7 Mr 27 '15

Earth, Age of

Age of the earth; a defense of Lord Kelvin's theory. F. A. Lindemann. Sci Am S 80:183 S 18 '15

Birth-time of the world: methods of determining its age. J. Joly. Sci Am S 79:77-9 Ja 30 '15

Sea-salt and geologic time. H. S. Shelton. Sci Am S 79:79-80 Ja 30 '15

Earth, Duration of

Modern ideas on the end of the world. G. Jau-mann. *Sci Am S* 79:178-9 Mr 20 '15

Earth, Figure of

Deformation of the earth by the moon. O. Klotz. *Sci Am S* 79:167 Mr 13 '15
Isostasy and mountain building. L. de Marchi. *Sci Am S* 80:198-9 S 25 '15

Earth pressure

Arched reinforced-concrete conduits designed by the theory of least work. W. M. Smith. *Eng Rec* 71:648-52 May 23 '15; Discussion. 71:753 Jo 12 '15

Boston foundations. J. L. Worcester. *Boston Soc C R J* 1:10-13 Jan '14

Data requested on the bearing value of soils. *Eng & Contr* 43:175 May 26 '15

Distribution of vertical soil pressures: tests at engineering experiment station of Penn-sylvania state college. J. A. Moyer. *Eng Rec* 71:330-2 Mr 13 '15

Earth pressures determined by laboratory ap-paratus. J. H. Smith. *diag Eng Rec* 72:72 J 17 '15

Internal pressure and resistance of clay, and the supporting power of clay foundations. A. L. Bell. *Engineer* 119:124 Jan 29 '15

Underdriving destroys a tunnel by clay pressure. *Eng N* 74:404-5 Ag 26 '15

Soil tests reported and safe underpinning methods in sand described. J. E. Greenhead. *diag Eng Rec* 72:631-3 N 20 '15

Earth slides. See Earthwork--Slides**Earth temperature**

Ground temperature variations decrease with depth. E. Lauchli. *Eng N* 74:510-11 S 9 '15

Earthquakes

Earth tremors on the Rand. A. C. Key. *Eng & Min J* 100:833-4 N 20 '15

Earthquake dangers in the United States. *Sci Am* 113:266 S 25 '15

Prevision of earthquakes. G. Davison. *Sci Am S* 80:198-9 Ag 11 '15

Sakurajima eruptions and earthquakes. E. Omori. *Sci Am S* 79:242-3 Ap 17 '15

See also Italy Earthquake, 1915

Bibliography

Earthquake literature. *Sci Am* 113:316 O 9 '15

Earthquakes and building

Earthquake-proof concrete tower. San Fran-cisco. *Eng N* 74:308-9 Ag 12 '15

Earthquake-proof tower. C. Berleth, Jr. *Eng M* 48:327 S '15

Imperial valley earthquake tests engineering works. *Eng N* 74:234 J 29 '15

Irrigation system uninjured by Imperial val-ley quake; brick buildings suffer most. *Eng Rec* 72:27-8 J 1 '15

Protection from earthquakes. T. Moreux. *Sci Am S* 79:90-1 F 6 '15

Earths

Kambura earth and its bleaching action on oils. K. Ikeno. *diag J Ind & Eng Chem* 7:590-500 J '15

Earths, Rare

Chemical research on terbium. C. James and D. W. Misel. *Am Chem Soc J* 36:2080-6 O '14

Electrolysis of solutions of the rare earths. L. M. Dennis and E. J. Lomon. *Am Chem Soc J* 37:181-7 Ja '15

Electrolysis of solutions of the rare earths. L. M. Dennis and E. A. Van der Meulen. *Am Chem Soc J* 37:1963-76 S '15

Fractional crystallization of the fluorates of the rare earths of the dysprosium group. L. M. Dennis and E. H. Rhodes. *Am Chem Soc J* 37:807-15 Ap '15

See also Thorax

Earthwork

Slotted pipe aids placing of hydraulic fill. A. M. Thompson. *Eng Rec* 71:534 Ap 24 '15

See also Dams; Dredging; Earth pressure; Embankments; Excavation; Filling; Forti-fication; Foundations; Grading; Hydraulic excavation; Railroads--Earthwork; Tunnels and tunneling

Cost

Comparative cost of handling earth on flat and sloping areas. *Re Asa R* 2:1444 Ja 12 '15

Methods and costs of moving earth in southern road construction. N. C. Hughes, jr. *Eng N* 73:734-5 Ap 15 '15

Slides

Stopping a difficult slide by the use of explo-sives. *Eng N* 74:24 J 1 '15

See also Panama canal Slides

Tables, calculations, etc.

Method of obtaining volumes in railroad or ditch work by diagrams. F. C. Snow. *Eng & Contr* 13:304 Mr 31 '15

Preliminary estimating of grading simplified. J. M. Brown. *Eng Rec* 71:610-11 My 15 '15

Simple form for earthwork computations. E. F. Verplanck. *Eng N* 73:29-30 Ja 7 '15

Table for computing the area of sidehill cuts. *Eng N* 71:272 Ag 5 '15

East river, New York

Plan for the improvement of Hell Gate, East river. C. D. Ward. *map Sci Am* 112:432 My 8 '15

East St. Louis, Illinois

Playground for a small city; Jones park. W. Webb. *Eng N* 74:421-6 D '14

Eastern supply association

Meeting. New York city, Feb. 17; list of those in attendance. *Eng N* 73:282-3 F 27 '15

Summer meeting. Atlantic City. N. J., June 16. *Eng N* 71:377-9 Jo 26 '15

Eastland (steamship)

Capitizing of the Eastland. *Eng N* 74:225-7 J 29 '15

Eastland disaster and vessel stability. R. A. Towler. *Eng N* 74:516-17 S 9 '15

Engineer's report blames Eastland disaster on poor design, overloading and mishandled bal-last. *Eng Rec* 72:221 2 Ag 21 '15

Ecclesiastical architecture. See Church architec-ture**Economic conditions**

Political economy and the engineer. G. L. Hoise. *Elec W* 66:1619-51 Jo 12 '15

Economics

See also Banks and banking; Credit; Gov-ernment ownership; Labor and laboring classes; Monopolies; Profit sharing; Tariffs; Trusts; Industrial; Unemployed

Economizers. See Fuel economizers**Eddy currents**

Incremental armature copper losses at no-load and armature teeth eddy-current losses. A. Press. *diag Ind E R J* 53:320 2 Jo 15 '15

Eddy rings

Eddy rings in firetube boilers. *Am Soc M E J* 37:117 F '15

Edison, Thomas Alva, 1816-

Award of the Franklin medal. *J Fr Inst* 180:111-14 J 1 '15

Celebration of Edison day at Panama-Pacific International exposition and at laboratories in West Orange, N. J. *Elec W* 66:957-8 O 30 '15

Edison and the invention of the electric in-candescent lamp. *El Elec R & W Elec'n* 67:878-8 O 9 '15; Same abstr. *Foundry* 43:404 O '15

Sketch. *Eng M* 50:199 N '15

Edison illuminating companies. Association of.

See Association of Edison illuminating com-panies

Edison phonograph shop, New York city

Edison phonograph shop; heating and ven-tilation at minimum cost, with ventilation of soundproof booths. C. M. Daniel. *plans Heat & Ven* 12:13-15 Ap '15

Edison plant, West Orange, New Jersey

Comments on the Edison fire. *Eng N* 73:38-40 Ja 7 '15

Concrete construction and the Edison fire. L. C. Wason. *Textile World* 48:637-40 F '15

Concrete was melted in Edison fire. *Eng N* 73:382-3 F 18 '15

Destructive fire at Edison factory. *Eng Rec* 70:660-2 D 19 '14

Fire damages the Edison plant. *El Elec W* 64:1132-3 D 12 '14

Fire in the Edison works at West Orange, N. J. *Eng N* 72:1922-7 D 17 '14

- Edison plant, West Orange, New Jersey—Cont.**
 Hot chemicals and concrete formed slag at Edison fire. *Eng Rec* 71:184 F 6 '15
 Preliminary repair work on the Edison concrete buildings. *Il diag*s *Eng N* 73:89-91 Ja 14 '15
 Preliminary report of committee on Edison fire. *diag*s plan *Eng & Contr* 43:193-6 Mr 3 '15
 Preliminary report of committee on Edison fire; findings. *Eng & Contr* 43:145 F 17 '15; Same. *Concrete Cem* 6:120-1 Mr '15
 Rebuilding Edison's great plant. *Sci Am* 112: 50 Ja 9 '15
 Repair of concrete buildings at Edison plant sets precedents in construction work. *Il diag*s *Eng Rec* 71:503-6 Ap 17 '15
 Underwriters and fire protection association report on Edison fire. *Il diag* plan *Eng Rec* 71:239-42 F 20 '15
- Edmonton, Alberta**
- Sewerage**
 Construction plant and methods employed in building a system of concrete block tunnel sewers at Edmonton, Alberta. *diag*s *Eng & Contr* 43:381-3 Ap 21 '15
 Design features of new sewerage works at Edmonton. *diag*s *Eng & Contr* 43:400-1 My 5 '15
- Education**
 Address to graduating class, Franklin Institute school of mechanic arts. G: A. Hoadley. *J Fr Inst* 179:587-95 My '15
 Educational scrap heap and the blind alley job. L. W. Dooley. *Sci Am N* 79:170-1 Mr 13 '15; *Excerpta*. *Il Sci Am* 112:247 Mr 13 '15
See also Evening and continuation schools; Industrial education; Professional education; Scholarships; Trade schools; Vocational education
- Germany**
 War and the school; how the interest of German school children is stimulated. *Il Sci Am N* 80:180 N 18 '15
- India**
 British India. *U S Sp Cons Rep* 72:40-6 '15
- Educator, Compulsory.** *See* Compulsory education
- Education, Industrial.** *See* Industrial education
- Education, Professional.** *See* Professional education
- Education of children**
 Care of exceptionally bright children. M. P. J. Grossmann. *Sci Am N* 80:171 N 11 '15
- Edwards, Edward**
 Edward Edwards and his art. S. H. Morgan. *Il Inland Ptr* 55:516-17 Jl '15
- Efficiency**
 Efficiency and standardization. C. B. Anel. *Am Ind* 15:31-3 N '15
 Efficiency system for road contractors. J: H. Hammond. *Eng & Contr* 43:552-4 Ja 23 '15
 Personal efficiency. B. L. Winchell. *Ry Ago* 58:191 Ja 29 '15
See also Ability tests; Office management; Scientific management
- Efficiency, Industrial**
 Business efficiency and the human element. M. Chapman. *Metal Work* 81:71-2 Jl 10 '15
 Drink and work. J. D. Hackett. *Iron Age* 95: 255 Ja 28 '15
 Efficiency—applied common sense and experience. F. C. Schwedman. *Am Ind* 15:16-17 F '15
 Efficiency in the brass foundry. W. R. Denn. *Metal Ind n* 12:327-9 Ag '15
 Efficiency in the plating room. M. P. Lator. *Il Foundry* 43:360-5 N '15
 Efficiency in the stores department. W. C. Astle. *Il Elec Rty J* 48:908-10 O 30 '15
 General business efficiency in connection with cotton mill management. J. T. Rose. *Textile World* 49:190-3 My '15
 How to create industrial leaders; chapter from "Industrial leadership." H: L. Gantt. *Eng M* 50:428-37 D '15
 Increased efficiency. A. A. Dowd. *Sibley J* 29: 157-63 F '15
 Industrial leadership. H. L. Gantt. *Iron Ago* 95:196-7 Ja 21 '15
- Measurement of efficiency.** H. L. Gantt. *Iron Tr R* 55:1131-3 D 17 '14; Same. *Ind Eng* 14:463-5 D '14; Same. *Iron Age* 94:1320-1 D 3 '14; Same. *Automobile* 31:1104-5 D 17 '14; Same cond. *Ry Ago* (Mech ed) 89:249-51 My '15; Same cond. *Metal Work* 83:725-6 My 21 '15; Abstract. *Eng M* 48:577-80 Ja '15; Abstract; with discussion. *Am Soc M E J* 37: 11-13 Ja '15
 More about the human factor. D: M. Myers. *Eng M* 49:801-8 S '15
 Retalling steel mill products. *Il Iron Tr R* 56: 65-71 Ja 7 '15
 Shop efficiency. G: H. Logan. *Ry R* 57:464-7 O 9 '15
 System and its abuse. J: Calder. *Iron Age* 96: 1043-4 N 4 '15
 Systems for the engineer and contractor. T: Barwick. *Heat & Ven* 11:37-34 N; 15-21 D '14; 12:18-23 Ja '15
 Using the electric-power meter to measure wasted production. R. El. Loper. *Eng M* 49: 231-4 My '15
 Waste in the management of public utility power plants. F. W. Collins. *Eng M* 49:888-93 S '15
 What is efficiency? R: M. Van Gaasbeek. *Am Ind* 15:32-3 O '15
 Where the money goes. R: O. Wye. *Elec R & W Elec'n* 65:1210-11 D 26 '14
See also Factory management; Foundry management; Office management; Scientific management; Shop management; Time study
- Efflorescence**
 Cause and prevention of efflorescence. *Concrete Cem* 7:116-17 S '15
- Eggs**
 Bacteriological and chemical study of commercial eggs in the producing districts of the central West. S. J. U S Agric Bul 51: 1-77 '14
- Eggs, Dried**
 Egg and albumen industry in China. *Am Ind* 15:40 F '14
- Egrets**
 British India. *U S Sp Cons Rep* 72:428-9 '15
- Egypt**
- Antiquities**
 Treasure of Tahn; beautiful jewelry ornaments and tools found in a plundered pyramid. W. M. F. Petrie. *Il Sci Am S* 79:284-5 Ap 24 '15
- Ehrlich, Paul, 1854-1915**
 Discoveries in chemotherapy. *Sci Am* 113:210 N 4 '15
- Eight-hour day.** *See* Hours of labor
- Ejectors**
 Squirt home ejector. *diag*s *Ry Ago* (Mech ed) 89:250 My '15
- Ejectors, Sewage.** *See* Sewage ejectors
- Elastic deformation.** *See* Deformations (mechanical)
- Elastic fabrics**
 Manufacture of elastic fabrics. S: Brown. *Il Textile World* 46:408-8, 491-4; 47:283-4, 324-6, 592-3; 48:394-7 Ju-Jl, My-Ju, S '14, Ja '15
- Elasticity**
 Bending elasticity of cast iron. A. Ono. *Am Soc M E J* 37:290-1 My '15
See also Strains and stresses; Strength of materials
- Elbows, Pipe.** *See* Pipe elbows
- Electric accidents.** *See* Electric shock
- Electric alarms**
 Electric alarm for bevel gear generator. B. K. Morgan. *diag*s *Mach* 22:232 N '15
 Garage alarm. *diag*s *Elec R & W Elec'n* 66: 387-8 F 27 '15
 Motor-driven fire and general alarm siren. *Il Elec R & W Elec'n* 66:40 Ja 2 '15
See also Fire alarms
- Electric apparatus, Protective.** *See* Electric protective apparatus
- Electric apparatus and appliances**
 Automatic device for timing relay and fuse operation. plan *Elec W* 65:608-9 Mr 6 '15

Electric apparatus and appliances—Continued

- Automatic electric elevator dispatcher. N. G. Meade. *diag* Power 41:540-1 Ap 20 '15
- Carbon as a heating element in appliances. C. W. Piper. *Elec W* 66:134-5 J1 17 '15
- Castings as electrical apparatus parts. A. B. Reynolds. *Iron Age* 94:1496-7 D 31 '14; Abstract (Holding an electrical manufacturer's business). *Foundry* 43:96-7 Mr '15
- Convenient electric soldering iron. J. N. Graham. *diag* *Elec* *ly J* 46:66 J1 10 '15
- Current supply for motion picture machines. H. R. Johnson. *diag* *Gen* *Elec R* 18:895-904 S '15
- Developments in electrical apparatus during 1914. J. Liston. *diag* *Gen* *Elec R* 18:80-93 F '15
- Electric bread-pan cleaning and greasing machine. *diag* *Elec R & W* *Elec'n* 66:1149 D 12 '14
- Electric equipment for painting without a brush. *diag* *Elec W* 66:1050 N 6 '15
- Electric remote gauges for shooting ranges. *Sci Am* 112:633-4 Je 25 '15
- Electric well-sounding instrument. L. W. Stocker. *diag* *Eng N* 73:444-6 Mr 4 '15
- Electrical appliances for workshops. *diag* *Engineer* 119:474-6, 546-9, 570-2, 620-2; 120:40-1, 54-6 My 14, Je 4-11, 25, J1 9-16 '15
- Electrical ball pitchers for indoor batting practice. *diag* *Sci Am* 113:364 O 23 '15
- Electrical long distance transmitting, indicating and recording system. *diag* *Ind Eng* 14:395-6 O '14; *Colliery* 35:281-2 D '14; *Elect & Van* 11:57-9 D '14; *Mach* 21:330-1 D '14; *Met & Chem Eng* 13:797-8 D '14; *Eng N* 72:1136-7 D 3 '14; *Elec R & W* *Elec'n* 66:1100-1 D 5 '14; *Power* 40:916-17 D 29 '14
- Electrical sounding. *diag* R. Gibson. *diag* *Elec R & W* *Elec'n* 66:1002-3 Mr 29 '15; Abstract. *Eng M* 49:764 Ag '15
- Electrically heated embossing block. *diag* *Elec W* 66:995 O 30 '15
- Electrically operated china outfit. *diag* *Elec R & W* *Elec'n* 66:701-2 Ap 10 '15
- Estimated values of materials for use in electrical industry. *Elec R & W* *Elec'n* 66:11 Ja 2 '15
- Measuring well-water levels under difficulties. H. W. Keith. *diag* *Eng N* 74:1037 N 25 '15
- N. G. L. A. committee report on electrical apparatus. *Elec W* 66:1517 Je 12 '15
- Ozone apparatus as a business proposition. *Elec R & W* *Elec'n* 66:33-4 Ja 2 '15
- Past year in electricity. *diag* *Iron Age* 95:294-5 F 4 '15
- Pearless variable-speed portable electric power equipment. *diag* *Elec R & W* *Elec'n* 66:314 F 13 '15
- Photoelectric relay. J. Kunz. *diag* *Elec W* 66:934 O 23 '15
- Selling lamp-socket appliances; an analysis of eleven years' experience in marketing electric household devices in southern California. S. M. Kennedy. *Elec W* 66:1412-14 My 20 '15
- Smoke recorder and monitor. W. W. Strong. *diag* *Power* 40:912-13 D 20 '14
- Swiveling attachment plug. *diag* *Elec R & W* *Elec'n* 67:980 N 27 '15
- Voting by electrical apparatus. *diag* *Elec R & W* *Elec'n* 66:744-5 Ap 17 '15
- Western electric developments in 1914. *Elec R & W* *Elec'n* 66:46-7 Ja 2 '15
- Westinghouse electric developments in the year 1914. *Elec R & W* *Elec'n* 66:43-5 Ja 2 '15
- Weston portable electrical testing instruments. *diag* *Textile World* 50:126-8 O '15
- See also* Armatures; Audion; Automobiles—Electric equipment; Condensers (electricity); Dynamos; Electric batteries; Electric bells; Electric circuit breakers; Electric controllers; Electric current rectifiers; Electric equipment; Electric furnaces; Electric fuses; Electric instruments; Electric lamps; Electric machinery; Electric motors; Electric motors; Electric precipitation; Electric protective apparatus; Electric railroads—Equipment and supplies; Electric shops; Electric shovels; Electric signals; Electric standards; Electric sterilization; Electric toys; Electric transformers; Electricity in mining; Electricity in the home; Electricity on the farm; Electromagnets; Fans, Elec-

tric; Fessenden oscillator; Fire alarms; Galvanometers; Gas and oil engines—Ignition; Induction coils; Oscillators; Phase advancers; Relays; Rheostats; Switchboards; Synchroscopes; Telephone

Exhibitions

- Electrical exposition and motor show of 1915. *Sci Am* 113:339 J. O 16 '15
- General electric company's exhibit at the Panama-Pacific international exposition. *diag* *Elec R & W* *Elec'n* 66:132-3 Ja 16 '14
- General electric company's exhibits at the Panama-Pacific international exposition. G. W. Hall. *diag* *Gen* *Elec R* 18:561-71 Je '15
- Home electrical at San Francisco. *diag* *Elec W* 66:1125-6 My 1 '15
- "Home electrical" at the Panama-Pacific international exposition. D. C. Shafer. *diag* *Gen* *Elec R* 18:672-8 Je '15; Same cond. *Elec R & W* *Elec'n* 66:1041-3 Je 5 '15

Losses

- Core loss in series motor. T. M. Robie. *diag* *Power* 41:771-2 Je 8 '15

Electric arc

- Arc phenomena. A. G. Collins. *diag* *Am Inst E E* Pro 34:2081-2100 S '15
- Electric arc in vapors and gases at reduced pressures. W. A. Durrant. *diag* *Met & Chem Eng* 13:915-18 D 1 '15
- Ferro-limeite arc on alternating-current circuits. L. Ludoff. *Elec R & W* *Elec'n* 66:871-2 My 8 '15
- Liquefaction of carbon and the temperature and conditions of the electric arc. *Sci Am S* 80:319 N 13 '15
- Unstable states in arc and glow. W. G. Cady. *Met & Chem Eng* 13:866-9 N 15 '15; Abstract. *Elec W* 66:1166-7 N 20 '15
- See also* Electric lamps; Arc

Electric armatures. See Armatures**Electric batteries**

- Battery zincs; some causes of defective service; abstract. R. Job and P. F. White. *ly Age* 53:61 J1 9 '15
- Buffer batteries for alternating-current systems; abstract. L. Schroeder. *Elec W* 66:788 Mr 27 '15
- Constructing selenium cells. *Sci Am* 112:201 F 27 '15
- Construction of selenium cells. S. Wein. *Sci Am* 113:103 My 1 '15
- Depolarization in Le Clanche cells; abstract. M. D. Thompson and E. C. Crocker. *Met & Chem Eng* 13:319 My '15; Abstract, with discussion. *Elec R & W* *Elec'n* 66:821-2 My 1 '15
- Galvanic cell that reverses its polarity when illuminated. A. A. Campbell. *Sci Am S* 80:60 J1 31 '15
- New form of primary battery. E. Bollini. *Elec R & W* *Elec'n* 66:788 Ap 24 '15
- New galvanic cell. *Sci Am* 113:68 J1 17 '15
- New primary battery; development of a cell using lead-mercury and carbon electrodes in sulphuric-nitric acid electrolyte. H. Bollini. *Eng M* 49:436-7 Je '15
- Selenium cell making. *Sci Am S* 79:187 Mr 20 '15
- Weston cells. *Elec W* 66:652-3 S 18 '15
- See also* Storage batteries

Electric bells

- Bell-ringing transformers. *diag* *Elec R & W* *Elec'n* 66:150-1 Ja 23 '15
- Electric bells; abstract. C. Turnbull. *diag* *Elec W* 66:21 J1 3 '15

Electric boilers. See Boilers Electric heating**Electric buses**

- Double-deck electric buses at Vienna. *diag* *ly J* 45:51 Ja 2 '15
- New electric omnibus for York, England. *diag* *Engineer* 119:287-8 Mr 10 '15; Abstract. *Automobile* 32:720 Ap 22 '15

Electric cables

- Analysis of cable faults. *Elec W* 66:116 Ja 9 '15
- Cable jointing. *diag* *Elec W* 64:1111 D 5 '14
- Cables. C. J. Beaver. *diag* *Am Inst E E* 53:57-60; Discussion. 53:81-102, 356-73 D 15 '14, Mr 1 '15; Abstract. *Elec W* 64:1162-3, 1212-13 D 12-19 '14

Electric cables—Continued

- Causes of joint failure pointed out to splicers. *Il Elec W 66:1122-3* My 1 '15
- Development of armored cable. H. R. Gilson. *Il Elec R & W Elec'n 66:1150-1* Je 19 '15
- Effect of moisture in the earth on temperature of underground cables. L. R. Imlay. *diags Am Inst E I Pro 34:263-70* F '15; Abstract and discussion. *Illec R & W Elec'n 66:389-90* F 27 '15; Discussion. *Am Inst E I Pro 34:2615-19* N '15
- Fargo's cable connectors. *Il Elec W 66:101-2* J1 10 '15; *Ity Age 59:572* N 24 '15
- Flexible support for lead-covered cable. *diags Illec Ry J 46:800* N 18 '15
- One-piece splicer vs. wrapped joint in feeder cable splicing practice. S. L. Foster. *Il Elec Ry J 46:955-6* N 6 '15
- Sag-tension calculations. H. Pender. *Illec W 66:344-5* Ag 14 '15
- Steel and bimetallic conductors as a substitute for copper and aluminum. F. W. Esch. *Illec W 66:1468-7* Je 5 '15
- Steel-reinforced aluminum cables. E. T. Driver and R. V. Pannell. *Illec W 66:524-6* S 4 '15
- Sterling outlet plate and connector for armored cables. *Illec R & W Elec'n 67:589* S 25 '15
- Voltage testing of cables. W. L. Middleton and C. L. Dawes. *Il diag Am Inst E I Pro 33:987-1008* Jo '14; Abstract. *Illec R & W Elec'n 65:32-3* J1 4 '14; Discussion. *Am Inst E I Pro 34:70-8* Jo '15
- Wiping a lead-covered cable. H. B. Weightman. *Illec R & W Elec'n 66:901-2* My 15 '15
- See also Cables, Submarine; Electric distribution; Electric wire and wiring; Insulation; Telephone cables
- Electric cars.** See Motor cars (railroad)
- Electric cells.** See Electric batteries
- Electric circuit breakers**
- Automatic reclosing circuit-breaker. M. C. Itaney. *diag Power 41:108* Ja 19 '15
- Automatic reclosing circuit-breakers. M. C. Itaney. *Il diag Colliery 35:560* My '15
- Automatic reclosing circuit-breakers. *Il diag Illec R & W Elec'n 66:924* My 15 '15; *Illec Ity J 46:996* My 22 '15
- Converter station of Aluminum company of America, Maryville, Tenn. *Il Power 41:776-7* Jo 8 '15
- Oil circuit-breakers. *Illec R & W Elec'n 66:1171-2* Je 19 '15; *Illec W 66:1645* Je 19 '15
- Oil circuit breakers: notes on are phenomena and tendencies in design. K. C. Randall. *Il Am Inst E I Pro 34:271-83* F '15; Discussion. *34:2673-81* O '15
- Electric circuits**
- Equivalence of Wheatstone bridge to three parallel circuits. A. H. Adams. *Illec W 66:406* Ag 21 '15
- Locating faults by the drop-of-potential method. H. S. Percival. *Illec R & W Elec'n 67:983-5* N 27 '15
- Mechanical forces in circuits carrying heavy currents; abstract. P. V. Hunter. *Illec W 64:1250* D 26 '14
- See also Electric conductors; Electric currents; Electric distribution; Electric lines; Electric transmission
- Electric code.** See National electrical code
- Electric conductivity**
- Absolute zero. M. Dushman. *Gen Illec R 18:243-7* Ap '15
- Conductivity and viscosity of solutions of electrolytes in formamide. P. B. Davis, W. S. Putnam and H. C. Jones. *Il diags J Fr Inst 180:567-601* N '15
- Conductivity of metals. J. J. Thomson. *Sci Am S 80:114-15* Ag 21 '15
- Electric strength of air. J. B. Whitehead. *Am Inst E I Pro 34:843-65* My '15; Discussion. *34:2997-3005* T '15
- Electrical conductivity imparted to liquid air by alpha rays. *Sci Am S 79:191* Mr 20 '15
- Electrical resistance as affected by very low temperatures. Hibley J 29:106-7 Ja '15; Same. *Sci Am S 78:82* F 6 '15
- Electron theory of electric conduction in metals. J. P. Minton. *Gen Illec R 18:204-9* Mr '15
- High temperature investigation and a study of metallic conduction. E. F. Northrup. *J Fr Inst 179:621-62* Je '15; Abstract. *Illec W 65:1614-15* Je 19 '15
- Methods, data, and new apparatus for measuring electrical conductivity above 1500° C. of vapors at normal pressure. E. F. Northrup. *Il J Fr Inst 179:337-63* Mr '15
- 99.84-per-cent-pure iron for electrical purposes. *Illec W 66:213-14* J1 24 '15
- Potential of silver in nonaqueous solutions of silver nitrate. V. L. Gibbons and F. H. Gelman. *ibid diags Am Chem Soc J 36:1630-55* Ag '14
- Preliminary study of the conductivity of certain organic acids in absolute ethyl alcohol at 15°, 25° and 35°. J. P. Wightman, J. R. Wiesel and H. C. Jones. *diags Am Chem Soc J 36:2243-59* N '14
- Sensitive criterion of the precision and of constant errors in the conductance data of weak electrolytes, the determination of the molar conductance of organic electrolytes at zero concentration and a study of the correction for the specific conductance of the conductivity of water. C. G. Derick. *Am Chem Soc J 36:2268-83* N '14
- Studies in conductivity; the conductivity of some formates and of hydrogen chloride in (anhydrous) formic acid; cases of apparent agreement of strong electrolytes with the mass law. H. I. Schlesinger and A. W. Martin. *diags Am Chem Soc J 36:1589-1620* Ag '14
- Study of alcoholic solutions of cadmium iodide. E. H. Gelman and V. L. Gibbons. *Am Chem Soc J 37:1990-6* S '15
- Sulphur as a conductor. C. A. Butman. *Illec W 64:1256* D 26 '14
- See also Electric conductors; Electric measurement; Electric resistance; Hall effect
- Electric conductors**
- Effects of bends on electrical conductors. P. Jackson. *Engineer 118:556* D 11 '14; Same. *Sci Am S 79:173* Mr 13 '15
- Experimental researches on skin effect in conductors. A. E. Kennelly, F. A. Laws and P. H. Pierce. *Il diags Am Inst E I Pro 34:1749-1809*; *ibid diags 1809-14* Ag '15
- Receiving-end impedance of a conducting line loaded at both ends. A. E. Kennelly. *Illec W 66:182-4* J1 21 '15
- See also Electric cables; Electric distribution; Electric transmission; Electric wire and wiring; Lightning conductors
- Electric conduits**
- Conduit wiring on plaster-board partitions and ceilings. C. M. Durfee. *diags Illec W 64:1254-5* D 26 '14
- Flexible metallic conduit in finished-building wiring. T. Croft. *diags Illec R & W Elec'n 66:421-3* Mr 6 '15
- Installation of rigid-conduit wiring in finished buildings. T. Croft. *diags Illec R & W Elec'n 66:379-82* F 27 '15
- Lighting company to use underground conduits of telephone company by rental. *Illec R & W Elec'n 66:378* F 27 '15
- N. E. L. A. committee report on underground construction. *diag Illec W 65:1519-20* Jo 13 '15; *Illec R & W Elec'n 66:1112-13* Jo 13 '15
- Outfit for making special conduit bends. *Illec R & W Elec'n 67:20* J1 3 '15
- Overhead concrete ducts for a factory distribution system. *Illec W 66:1032* N 6 '15
- Underground wires on the Panama railroad. *Il Ity Age 58:451-3* Mr 12 '15
- Wiring and conduit work at the Panama-Pacific exposition. A. A. Willoughby. *Il diag Illec R & W Elec'n 67:305-8, 472-4* Ag 28, S 11 '15
- See also Electric cables; Electric conductors; Electric distribution; Electric wire and wiring
- Electric contact strips**
- Contact strips for electric signs and lamps. *Illec W 66:603* S 11 '15
- Electric contractors**
- Advertising for electrical contracting work. *Illec W 65:1061* Ap 24 '15

Electric contractors—Continued

- Annual convention of New England contractors at Springfield, Mass., Sept. 21-23. Elec R & W Elec'n 67:607-11 O 2 '15
- Bookkeeping and cost-keeping for electrical contractors. L. W. Moxey, Jr. Elec W 66:1163-5 N 21 '15
- Broadening the contractor; what co-operation between inspector, contractor and journeyman has done in Louisville. Elec W 65:554-5 F 27 '15
- Business hints for contractor and dealer. G. D. Crain, Jr. Elec R & W Elec'n 66:682; 67:188-9, 476-6 Ap 10, J1 31, S 11 '15
- By-laws of California association. Elec R & W Elec'n 67:841-3 N 6 '15
- California association of electrical contractors and dealers meeting, San Francisco, Sept. 24, 1915. Elec R & W Elec'n 67:612 O 3 '15
- Checking labor estimates in electrical contracting. Elec W 65:554 F 27 '15
- Contractor and the automobile. G. D. Crain, Jr. Elec R & W Elec'n 66:423-5 Mr 6 '15
- Contractors' cost-keeping system. Elec W 65:797-9 Mr 27 '15
- Contractors' office forms and systems. M. J. Lavallee. Elec R & W Elec'n 67:62-3 J1 10 '15
- Convenient estimate and proposal sheets. Elec W 65:556-7 F 27 '15
- Co-operation between electrical contractors and jobbers. Elec R & W Elec'n 67:843-4 N 6 '15
- Co-operation between electrical contractors and jobbers. W. L. Goodwin. Elec R & W Elec'n 67:282-5 Ag 14 '15
- Co-operation of the central stations with the electrical contractors and dealers in electrical supplies. N. V. Walton. Elec R & W Elec'n 67:281-2 Ag 14 '15
- Doing business on low overhead expense; W. B. Perry electric company, of Brooklyn. Elec W 65:544-6 F 27 '15
- Electrical contractors' association of Wisconsin. Elec R & W Elec'n 65:162-3 Ju 23 '15
- Estimating. G. R. Kreder. Elec R & W Elec'n 66:196-8 Ju 30 '15
- Handling out-of-town work. A. W. Lindgren. Elec R & W Elec'n 67:51 J1 10 '15
- How the contractor can know where he stands. L. W. Moxey, Jr. Elec W 65:870-3 O 16 '15
- How to estimate cost and keep accounts. J. P. Coghill. Elec W 65:818 O 9 '15
- Illinois contractors hold semi-annual convention. Elec R & W Elec'n 66:164 Ju 23 '15
- Insurance saving and concentric wiring discussed by Illinois contractors. Elec W 65:254-6 Ju 23 '15
- Labor costs in interior construction. L. W. Moxey, Jr. Elec W 65:294-7 O 23 '15
- Massachusetts contractors convene. Elec W 66:773-4 O 2 '15
- National electrical contractors' association 15th annual convention. Elec R & W Elec'n 67:203-4 J1 31 '15
- New England electrical contractors' convention, Springfield, Mass.; abstracts of papers. Elec W 66:820-30 O 9 '15
- Office methods for the electrical contractor. Elec R & W Elec'n 66:550-2 Mr 20 '15
- Office system and forms for the electrical contractor. C. M. Converse. Elec R & W Elec'n 67:160-2 J1 24 '15
- Record forms for the electrical contractor. Elec R & W Elec'n 66:724-5 Ap 17 '15
- Semi-annual convention of Minnesota electrical contractors' association. Elec R & W Elec'n 66:246 F 6 '15
- Shedfield city and electrical contractors. Elec R & W Elec'n 65:1132-3 D 12 '14
- Why Jones went broke. Elec R & W Elec'n 66:341-2 F 20 '15

Electric control

- Automatic control. C. W. Place. Am Inst E E Pro 34:2429-35 O '15
- Automatic electric control for hydraulic accumulators. II diag Engineer 120:301-2 S 24 '15
- Automatic electric control of pumps. G. J. Kirchhammer. II diag Power 41:511-14 Je 15 '15
- Centrally controlled electric haulage systems. R. M. Woodford. II Eng Soc W 1'a 31:584-97; Discussion. 31:598-608 O '15

- Control and protection of electric systems. G. P. Steinmetz. J Fr Inst 180:1-16 J1 '15; Same. Gen Elec R 18:887-94 S '15; Same cond. Power 42:176-7 Ag 3 '15; Same cond. Sel Am S 80:202-3 S 25 '15
- Control for machine-tool motor drives. II Elec W 66:303 Ag 7 '15
- Electric control for doors. II Elec W 66:1049 N 6 '15
- Electro-thermostatic control of radiators. Sel Am 112:304-4 Ap 17 '15
- Generator control. P. M. Heldt. diag Horseless Age 35:610-11, 678-9, 708-11 My 5, 19-26 '15
- Operating with 5000-volt direct current. N. W. Storer. II diag map Elec Ry J 46:660-3 O 2 '15

See also Electric controllers; Electric lamps; Tungsten—Control; Electric motors—Control; Electric railroads—Control

Electric controllers

- Alternating-current coal hoist. R. E. Brown. II Am Inst E E Pro 34:615-22 Ap '15; Abstract, with discussion. Elec R & W Elec'n 66:781-2 Ap 24 '15; Discussion. Am Inst E E Pro 34:289-914 N '15
- Alternating-current controllers for steel mills. A. Simon. II diag Am Inst E E Pro 34:731-61 My '15; Same. Iron Tr R 67:477-814, 527-9 S 9-16 '15; Abstract. Elec W 65:1195-6 My 8 '15; Discussion. Am Inst E E Pro 34:2896-914 N '15
- Arc-light controller for motion picture projection of apparatus. II Sel Am 112:272 Mr 20 '15
- Contractor closed and opened. J. A. Horton. diag Power 41:208 F 9 '15
- Control of direct current hoists in iron and steel mills. G. E. Stoltz and W. C. Lum. II diag Am Inst E E Pro 34:723-9 My '15; Discussion. 34:2947-65 D '15
- Direct-current control for hoisting equipment in industrial plants. W. T. Snyder. diag Am Inst E E Pro 31:636-710 My '15; Same (How to buy hold controllers). Iron Tr R 66:871-4 Ap 29 '15; Same cond. Engineer 120:208-10 Ag 27 '15; Abstract, with discussion. Elec R & W Elec'n 66:780-1 Ap 24 '15; Discussion. Am Inst E E Pro 34:2947-65 D '15
- Direct-current hoist equipment in industrial plants; discussion at meeting of A. I. E. E. Elec W 65:1124 My 1 '15
- Electric hitchway control gear for cranes. II diag Engineer 119:176-7 My 14 '15
- Industrial control in the foundry. R. H. McLain. II Am Inst E E Pro 31:87-97 Ap '15; Same. Foundry 43:291-3 My '15; Abstract, with discussion. Elec R & W Elec'n 66:777-8 Ap 21 '15; Discussion. Am Inst E E Pro 34:2984-96 D '15
- Mill controllers. H. E. Stratton. Am Inst E E Pro 34:599-614 Ap '15; Same. Iron Tr R 66:820-4 Ap 22 '15; Abstract, with discussion. Elec R & W Elec'n 66:778-80 Ap 21 '15; Discussion. Am Inst E E Pro 34:2869-94 N '15
- Motor control in foundries and steel mills; discussion at meeting of A. I. E. E. Elec W 65:1081-2 Ap 24 '15
- Motor control in steel mills discussed at Pittsburgh. Elec R & W Elec'n 66:777-82 Ap 24 '15
- Oscillating circuit controller for railway signal circuits. II Elec R & W Elec'n 65:1193-4 D 19 '14
- Selection of electric motors and controllers. S. H. Lilly. Foundry 43:60-3 F '15
- Steel mill controllers from the operator's standpoint. J. S. Riggs. Am Inst E E Pro 34:715-22 My '15; Discussion. 34:2869-94 N '15

See also Electric motors; Rheostats

Electric cooking

- Automatic electric cooker for steam cooking on improved fireless principle. II Elec R & W Elec'n 67:249-50 Ag 7 '15
- Central station investment to serve electric-range load. Elec W 66:706 S 25 '15
- Cooking with electricity the other side of the story. Am Gas Light J 103:205 S 27 '15
- Economical electric cooking. P. W. Gurnea. diag Eng M 40:580-3 J1 '15
- Electric cooking. Elec R & W Elec'n 66:644 Ap 3 '15
- Electric cooking and heating in private houses. W. A. Elliott. Inst E E J 53:42-51; Discussion. 53:51-3, 823-7 D 1 '14, Ju 15 '15

Electric cooking—Continued

- Electric cooking grows in popularity at Wildwood, Ohio. *Il Elec W* 66:738 Mr 20 '15
- Electric cooking in apartment houses. *Il Elec W* 66:982-3 O 30 '15
- Electric cooking in Poplar Bluff, Mo. *Elec R & W Elec'n* 66:339-40 F 6 '15
- Electric cooking, mainly from the consumer's point of view. W. R. Cooper. *diag Inst E* 6 J 53:473-84; Discussion. 53:481-97, 676-90, 838-7 Ap 1, My 1, Je 16 '15
- Electric heating and cooking. P. W. Guinaer. *Il Sci Am* 118:496-7 D 4 '15
- Eliminating the coal range from the kitchen. H. C. Spaulding. *Il Sci Am* 113:64 Ja 16 '15
- Interesting electric-cooking costs from Germany. *Elec W* 66:702 S 26 '15
- Large electric kitchen; abstract. K. Perlewitz. *diag Elec W* 64:1116-16 D 5 '14
- New possibilities of electric heating and cooking brought out in meeting of British central stations. *Elec R & W Elec'n* 66:334 F 20 '15
- Practical education in electric cooking; domestic science department of the University of New Mexico. H. W. Alexander. *Il Elec W* 65:232-3 Ja 23 '15
- Promoting electric cooking through the rising generation. *Il Elec W* 66:1197-8 N 27 '15
- What policy is being adopted by gas companies to meet electric stove competition? V. S. McIntyre. *Am Gas Light J* 103:220 O 4 '15

See also Electric ovens; Electric stoves

Electric current converters

See also Electric transformers

Electric current rates. See Electric power—Rates**Electric current rectifiers**

- Aluminum rectifier. G. Schulze. *Elec W* 65:1562 Je 12 '15
- Construction of a vibrating rectifier for charging automobile ignition batteries. C. Franasz. *diag Sci Am* 84:108-9 Ag 14 '15
- Mechanical rectifier for heavy currents. *Elec W* 64:1263 D 26 '14
- Mercury-arc rectifier for charging small batteries. *Il Elec R & W Elec'n* 67:384 Ji 10 '15; *Elec W* 66:102 Ji 10 '15
- Mercury vapor rectifier locomotive an accomplished fact. *Il diag Elec Rty J* 44:1343 D 19 '14
- New device for rectifying high tension alternating currents; the Kenotron. S. Dushman. *diag Gen Elec R* 18:166-67 Mr '15; Abstract. *Elec W* 65:659-60 Mr 13 '15
- Pure electron discharge and its applications in radio telegraphy and telephony. I. Langmuir. *diag Gen Elec R* 18:332-4 My '15
- Small mercury-vapor rectifier for charging automobile lighting batteries. *Il Elec R & W Elec'n* 66:1010 My 20 '15; *Automobile* 32:904 My 20 '15
- Volages with electrolytic rectifier. *diag Elec R & W Elec'n* 67:669, 759 O 9, 23 '15

Electric currents

- Contact electrification and the electric current. F. Sanford. *Sci Am* 84:332-3 N 20 '15
- Diminished electric current: an Italian device by which a bending circuit is useless for lighting. G. Pacherle. *diag Ing M* 48:739-40 R '15
- Distributing potential over a string of insulators. J. L. Breuneman and H. M. Crothers. *diag Elec W* 64:1095-9 D 5 '14
- Growth of current in circuits of negative temperature coefficient of resistance. F. W. Lyle. *Gen Elec R* 18:1139-30 D 1 '15
- Harmonics in transformer magnetizing currents. J. E. Peters. *diag Am Inst E* 10 Pro 34:1657-73 Ag '15
- Infinite duration of transients. C. L. Clarke. *Gen Elec R* 18:73 Ja '15
- Measuring the current in d. c. circuits. O. A. Knopp. *Il diag Elec W* 66:761-2 O 2 '15
- Receiving-end impedance of conducting line loaded at both ends. A. E. Kennedy. *Elec W* 66:182-4 Ji 24 '15

See also Concrete. Effect of electricity on; Eddy-currents; Electric circuits; Electric conductivity; Electric conductors; Electric distribution; Electric measurement; Electric meters; Electric testing; Electric transformers; Electric transmission; Electric waves

Electric currents, Alternating

- Alternating current electrolysis. J. C. Ghosh. *diag Am Chem Soc J* 30:3383-46 N '14
- Analysis of unbalanced three-phase systems. L. G. Stokvis. *Elec W* 65:1111-15 My 1 '15
- Analytical and graphical solution for non-sinusoidal alternating currents. F. M. Mizush. *Am Inst E* 10 Pro 34:1075-86 Jo '15; Abstract. *Elec W* 66:31 J 3 '15
- Calculation of sudden short circuit phenomena of alternators. N. S. Diamant. *diag 6 pls Am Inst E* 10 Pro 34:2043-79 S '15
- Calibration of current transformers by means of mutual inductance. C. Fortescue. *diag pls Am Inst E* 10 Pro 34:1199-1216 Je '15
- Distortion of alternating current wave caused by cyclic variation in resistance. F. Rodell and G. C. Mayer. *diag Am Inst E* 10 Pro 34:177-86 F '15; Abstract. *Elec W* 65:472 F 20 '15; Discussion. *Am Inst E* 10 Pro 34:2584-9 O '15
- Experimental researches on skin effect in conductors. A. M. Kennedy, F. L. Laws and P. H. Pierce. *Il diag Am Inst E* 10 Pro 34:1749-1809; *Illlog.* 1809-14 Ag '15
- Flow of energy. L. A. Philip. *diag Am Inst E* 10 Pro 34:465-84 Ap '15; Same. *W Soc E* J 20:444-72 My '15; Same cond. *Engineer* 120: 67-9 J 16 '15; Same cond. *Power* 42:352-5 S 7 '15; Abstract. *Elec W* 65:1036-6 Ap 24 '15; Discussion. *W Soc E* J 20:472-7 My '15
- Magnetic behaviour of iron under alternating magnetization of sinusoidal wave-form. N. W. Melachlan. *diag Inst E* 10 J 53:809-19 Je 15 '15
- Parallel operation of frequency changers. G. H. Redfey. *diag Gen Elec R* 18:835-8 Ag '15
- Producing vector diagrams experimentally; improved apparatus designed to visualize alternating-current diagrams. A. M. Kennedy and H. G. Crane. *Il diag Elec W* 65:985-6 Ap 17 '15
- Unbroken alternating current for cable telegraphy. G. O. Squier. *diag J Fr Inst* 180:311-34 S '15
- What to call alternating-current motors. C. A. Adams. *Elec W* 65:339 Ag 14 '15
- What to call alternating-current motors; discussion. V. A. Pynn; M. Rosenberg. *diag Elec W* 66:971-5 O 30 '15

See also Electric distribution; Electric waves

Electric discharges

- Pure electron discharge and its applications in radio telegraphy and telephony. I. Langmuir. *diag Gen Elec R* 18:327-39 My '15
- Sustained radio-frequency high-voltage discharges. H. J. Ryan and R. G. Marx. *Elec R & W Elec'n* 67:628 O 2 '15
- Unstable states in arc and glow. W. G. Cady. *Met & Chem Eng* 13:869-9 N 15 '15; Abstract. *Elec W* 66:1166-7 N 20 '15

See also Cathode rays; Ionization; Radioactivity; X rays

Electric distribution

- Alarm arrangement designed for the purpose of indicating grounds. *plan Elec W* 66:812 O 9 '15
- Apparatus for determining voltage at feeder taps in network systems. *Il Elec W* 65:300 Ja 30 '15
- Arc phenomena. A. G. Collins. *Il diag Am Inst E* 10 Pro 34:2081-2100 S '15
- Automatic voltage regulators. W. H. Acker. *Il diag Elec W* 65:127-8 Ja 9 '15
- Battery reserve in an alternating-current system. *diag Elec W* 66:465-6 Ag 28 '15
- Characteristics of the three-wire generator: analysis of its behavior when used as a balancer in a direct current lighting system. C. J. Ferguson. *diag Elec W* 64:1199-1204 D 19 '14
- Converting a distribution system. *Elec W* 66: 86-7 Ji 10 '15
- Distribution system for power purposes: system of the Western Canada power company. R. D. Nims. *Il Am Inst E* 10 Pro 33:1147-62 Ag '14; Discussion. 34:161-7 Ja '15
- Economics of electric railway distribution. H. F. Marshall. *Elec Rty J* 44:1260 D 5 '14; Same (Standardization). *Elec R & W Elec'n* 65:1147 D 12 '14
- Effect of third harmonic in voltage wave. R. C. Powell. *diag Elec W* 65:157-8 Ja 16 '15

Electric distribution—Continued

- Effect of voltage changes on electrical apparatus. *Elec W* 66:535 S 4 '15
- Effects of remote feeder taps on schedule speed. *N; Stahl. Elec Ry J* 45:991-3 *My* 22 '15
- Electrical equipment of Panama-Pacific exposition. *Il* *diag* plan *Elec W* 64:1241-7 *D* 26 '14
- Fargo ground points. *Il* *Elec R & W Elec'n* 67:250-1 *Ag* 7 '15
- Feeder-tap protection for d.c. apparatus and a few suggestions regarding the care of commutators. *C; H. Smith. Elec Rty J* 46:627-8 *Mr* 27 '15
- Feeder-tap resistance in rotary-converter practice. *L. P. Creelhus; J. C. Baughner. Elec Ry J* 46:799-800 *Ap* 24 '15
- Finding an elusive ground. *W; R. Dixon. diag* *Power* 42:162 *Ag* 3 '15
- From a.c. to d.c. in the night. *Il* *diag* *Elec Ry J* 46:542-50 *Mr* 20 '15
- General notes on grounding. *H. M. Wolf. Gen Elec R* 18:991-5 *O* '15
- Ground interfered with parallel operation. *J. B. Kilroy. plan* *Power* 42:203-4 *Ag* 10 '15
- Ground-wire disconnecter. *Il* *Elec Ry J* 46:158 *Jul* 21 '15
- Grounded-secondary systems. *Elec W* 66:1088 *N* 13 '15
- Load dispatching system of the Columbus railway, power and light company. *H. W. Clapp. Il* *Gen Elec R* 17:912-14 *S* '14
- Locating faults by the drop-of-potential method. *H. S. Percival. Elec R & W Elec'n* 67:983-5 *N* 27 '15
- Motor service in a large bolt factory; electrical distribution system of the Reed & Prince manufacturing company, Worcester, Mass. *Il* *diag* *Elec W* 65:1188-91 *My* 8 '15
- N. 16. L. A. committee report on grounding secondaries. *Elec W* 65:1520 *Je* 12 '15
- Part construction plays in getting small loads. *Il* *Elec W* 66:530-2 *S* 4 '15
- Power distribution on Penn. R. R. at Philadelphia. *Il* *plan* *Power* 42:685-6 *N* 16 '15
- Protecting electrical apparatus from self-destruction. *Elec Ry J* 46:659 *Ap* 3 '15
- Puzzling ground. *T; G. Thurston. diag* *Power* 11:312-3 *Mr* 9 '15
- Remotely controlled mock distribution system. *Il* *Elec W* 65:610 *Mr* 6 '15
- Residential load characteristics. *Elec R & W Elec'n* 66:916 *My* 22 '15
- Schweitzer automatic instantaneous voltage regulator. *diag* *Elec R & W Elec'n* 66:271 *F* 6 '15
- Single-phase loads from polyphase systems. *Engineer* 120:185-6 *Ag* 20 '15
- Supervising 840 miles of lines; how the load dispatcher of the San Joaquin (Cal.) system adjusts even plant water supply. *L. J. Moore. Il* *map* *Elec W* 65:1122-4 *My* 29 '15
- Supplying of power to the Quaker oats company. *J. M. Draballa. Il* *diag* *Gen Elec R* 18:42-4 *Jul* '15
- Test of ground plates. *Elec R & W Elec'n* 67:666, 669-70 *S* 25, *O* 9 '15
- Ways of hunting trouble on distribution systems. *Il* *diag* *Elec W* 66:579-82, 638-42 *S* 11-18 '15
- Why an induction regulator stuck and how it was repaired. *E. C. Parham. Elec W* 66:1147 *N* 20 '15
- Work of the load dispatcher. *R. R. Robley. Il* *diag* *Elec W* 65:1118-21 *My* 29 '15
- See also* Electric cables; Electric conductors; Electric currents; Electric driving; Electric fuses; Electric power; Electric transformers; Electric transmission; Electric wire and wiring; Rotary converters; Switchboards
- Electric driving**
- Air-lift pumps as a central-station load. *diag* *Elec R & W Elec'n* 66:1191-2 *Ja* 26 '15
- Application of electric drive in flour mills and similar industries; abstract. *T. L. Simper. Elec R & W Elec'n* 66:192-3 *Ja* 30 '15
- Application of electric motors to gold dredges. *C. B. Rosenblatt. Il* *diag* *Am Inst E* 19 *Pro* 38:1105-76 *Ag* '14; Abstract. *Eng & Min J* 98:739-40 *O* 24 '14; Discussion. *Am Inst E* 19 *Pro* 34:144-54 *Ja* '15
- Application of electric power in a lumber yard. *Il* *diag* *Elec R & W Elec'n* 66:400-1 *F* 27 '15
- Application of electricity to the ore handling industry. *C. L. Gilpin. diag* *Am Inst E* 19 *Pro* 34:397-415 *Mr* '15; Abstract. *Elec W* 65:996-7 *Ap* 17 '15
- Brick-plant production increased by electric drive. *Il* *Elec W* 65:794 *Mr* 27 '15
- Buying power for the rolling mill. *B. Willey and W. Sykes. Iron Tr R* 67:530-3 *S* 16 '15
- Case where motor drive just suits; application in a shoddy mill. *Il* *Elec W* 66:415 *Ag* 21 '15
- Characteristics of electric motors involved in their application. *D. B. Rushmore. Am Inst E* 19 *Pro* 34:187-93 *F* '15; Abstract and discussion. *Elec W* 65:523 *F* 27 '15; Discussion. *Am Inst E* 19 *Pro* 34:2747-803 *N* '15
- Control of direct current hoists in iron and steel mills. *C. E. Stoltz and W. O. Lam. Il* *diag* *Am Inst E* 19 *Pro* 34:723-9 *My* '15; Discussion. 31:2947-65 *O* '15
- Cost of electric dredging for land reclamation. *San Diego, Cal. L. R. W. Allison. Eng & Contr* 14:395-6 *Ag* 4 '15
- Doing it electrically at West Point. *J. A. Randolph. Il* *Elec W* 66:574-5 *S* 11 '15
- Economies of motor drive. *IL K. Stratton. Iron Tr R* 65:527-30 *E* 17 '14; Same cond. *Elec R & W Elec'n* 65:827-8 *O* 21 '15; Abstract. *Ind Eng* 11:495-6 *O* '11
- Electric drive effects economy in large tire factory. *Elec R & W Elec'n* 67:104-5 *Jul* 17 '15
- Electric drive for economic operation and development of cement mills. *J. B. Porter. Am Soc M E J* 37:157-8 *Mr* '15
- Electric drive for grain elevators. *Elec R & W Elec'n* 66:378 *F* 27 '15
- Electric drive in a cottonseed-oil mill. *J. W. Ruff. Elec W* 66:278-9 *O* 30 '15
- Electric drive in building construction. *Il* *Elec W* 65:675 *Mr* 13 '15
- Electric drive in confectionery making. *Il* *Elec W* 65:791-2 *Mr* 27 '15
- Electric drive supplies steam engine and belt transmission in paper-bag factory. *Il* *Elec W* 65:383 *Ap* 10 '15
- Electric driving of wooden mills. *J. P. Crowley. Ind Eng* 15:81-3 *Ag* '15
- Electric motor drive; method of interlocking machines for simultaneous operation in the new plant of the Commercial milling company, Detroit, Mich. *Il* *diag* plan *Elec W* 65:105-9 *Jun* 9 '15
- Electric motor in the printing industry. *W. C. Yates. Il* *Gen Elec R* 18:1136-12 *D* '15
- Electric motors in the Portland cement industry. *Elec W* 65:111 *Jun* 9 '15
- Electric power in the machine shop. *A. L. De Leeuw. Iron Tr R* 67:988-90 *O* 7 '15
- Electric power in the textile industry. *C. A. Chase. Il* *Gen Elec R* 18:510-50 *Je* '15
- Electrical construction in machine shops and foundries. *N. G. Meade. diag* *Elec R & W Elec'n* 67:116 *N* 11 '15
- Electrical equipment of the Vermont marble company. *J. Eaton. Il* *Gen Elec R* 18:1015-25 *N* '15
- Electrical practice in steel mills. *D. M. Petty. Iron Tr R* 67:941-2 *N* 11 '15
- Electrically driven chime mill. *Il* *Elec R & W Elec'n* 66:122-3 *Je* 12 '15
- Electrically operated brick factory at Springfield, Ill. *Il* *Elec W* 65:671-3 *Mr* 13 '15
- Electrically operated coal plant. *Il* *Elec W* 65:994-5 *Ap* 17 '15
- Electrically operated contractor's plant for building Keweenaw. *A. W. Carroll. Il* *Eng Rec* 71:118-20 *Ja* 2 '15
- Electrically operated phonograph. *Il* *diag* *Elec W* 65:180 *Je* 5 '15
- Electricity for municipal pumping. *Il* *Elec R & W Elec'n* 67:653-6 *O* 9 '15
- Electricity in a cold-storage plant. *Il* *Elec R & W Elec'n* 67:357-9 *Apr* 28 '15
- Electricity in a Massachusetts shoe factory. *T. D. Bond. Il* *Elec W* 66:88-90 *Jul* 10 '15
- Electricity in a modern saw mill. *Il* *Elec R & W Elec'n* 66:290-2 *F* 13 '15
- Electricity in a wholesale grocery establishment. *Il* *Elec R & W Elec'n* 67:503-6 *S* 18 '15
- Electricity in an automobile assembling plant. *Il* *Elec R & W Elec'n* 66:329-31 *F* 20 '15

Electric driving—Continued

- Electricity in an ore-treating plant. *Il Elec R & W Elec'n* 66:481-4 Mr 13 '15
- Electricity in bakeries. *Il Elec R & W Elec'n* 66:715-21 Ap 17 '15
- Electricity in breweries. *Il Elec R & W Elec'n* 66:1144-6 Ja 10 '15
- Electricity in brick-making. *Il Elec R & W Elec'n* 66:85-9 Ja 9 '15
- Electricity in cement manufacture. N. G. Meade. *Il Elec R & W Elec'n* 67:273-5 Ag 14 '15
- Electricity in chair manufacturing. *Il Elec R & W Elec'n* 66:979-82 My 29 '15
- Electricity in cotton duck mills. *Il Elec R & W Elec'n* 66:873-9 Ap 10 '15
- Electricity in cotton gins. J. H. Mosley. *Il Elec R & W Elec'n* 67:139-45 Ji 24 '15
- Electricity in hardware manufacturing. *Il Elec R & W Elec'n* 66:801-6 My 1 '15
- Electricity in harvesting machinery works. *Il Elec R & W Elec'n* 67:745-50, 883-8 O 25, N 13 '15
- Electricity in ice-cream manufacture. *Il Elec R & W Elec'n* 66:413-15 Mr 6 '15
- Electricity in ice-cream manufacturing. *Il Elec R & W Elec'n* 67:55-7 Ji 10 '15
- Electricity in implement manufacturing. W. J. Kyle. *Il Elec R & W Elec'n* 67:297-101 Ji 17 '15
- Electricity in large steel warehouses. *Il Elec R & W Elec'n* 67:463-5 H 11 '15
- Electricity in laundries. *Il Elec R & W Elec'n* 66:617-20 Ap 3 '15
- Electricity in lime manufacture. A. C. Hewitt. *Il Elec R & W Elec'n* 67:181-4 Ji 31 '15
- Electricity in magazine publishing. *Il Elec R & W Elec'n* 66:106-7 Ja 16 '15
- Electricity in milling houses; relative merits of isolated-plant and central-station service. *Il Elec R & W Elec'n* 65:1123-8 D 12 '14
- Electricity in manufacture of wood-pulp paper. *Il Elec R & W Elec'n* 67:223-6 Ag 7 '15
- Electricity in manufacturing. Power 40:901-2 D 22 '11
- Electricity in marble quarrying. *Il Elec R & W Elec'n* 67:963-6 N 27 '15
- Electricity in packing plants. *Il Elec R & W Elec'n* 66:145-8 Ja 23 '15
- Electricity in paper making. W. B. Conant. *Il Elec R & W Elec'n* 66:371-5 I 27 '15
- Electricity in printing plants. *Il Elec R & W Elec'n* 66:851-6 My 8 '15
- Electricity in rubber mills. *Il Elec R & W Elec'n* 66:573-9 Mr 27 '15
- Electricity in sand and gravel plants. *Il Elec R & W Elec'n* 67:599-602 O 2 '15
- Electricity in stone quarries and asphalt plants. *Il Elec R & W Elec'n* 67:315-18 Ag 21 '15
- Electricity in textile mills. *Il Elec R & W Elec'n* 67:789-91 O 20 '15
- Electricity in the largest lumber mill; Weyerhaeuser co., Everett, Wash. A. H. Onstad. *Il Elec W* 66:1080-1 N 13 '15
- Electricity in the lumber industry. L. F. Whitney. *Il Elec W* 66:1080-1 N 13 '15
- Electricity in the manufacture of electrical machinery. *Il Elec R & W Elec'n* 66:287-9 I 13 '15
- Electricity in the publishing business. *Il Elec R & W Elec'n* 66:1069-72 D 5 '14
- Electricity in twine and rope mills. *Il Elec R & W Elec'n* 67:551-4 H 25 '15
- Electricity in waterworks plants. L. B. Darling. *Il Elec R & W Elec'n* 66:809-71 My 8 '15
- Electricity in woodworking plants. *Il Elec R & W Elec'n* 66:893-7 My 15 '15
- Electricity saves paper mill \$400 a month. *Il Elec W* 66:873 Mr 13 '15
- Electrification of mills at Boulday. *Il Elec R & W Elec'n* 66:984 My 20 '15
- Electrified milk-distributing depot using central station service. *Il Elec W* 66:850 H 18 '15
- Factors involved in motor applications; outline. D. B. Rushmore. *Am Inst 10 10 Pro* 34: 417-19 Mr '15; Discussion. 34:2666-746 N '15
- Fields of motor application. D. B. Rushmore. *Am Inst 10 10 Pro* 34:1105-13 Jo '15; Discussion. 34:3006-52 D '15
- Fireclay company, Denver, increases profits by use of central-station service. *Il Elec R & W Elec'n* 67:804 O 2 '15
- Fractional horse power motor load. B. Lester. *Il Am Inst 10 10 Pro* 34:385-95 Mr '15; Same cond. *Eng. M.* 49:268-71 My '15; Abstract. Power 41:580-90 Ap 27 '15; Discussion. G. H. Gavelon. *Am Inst 10 10 Pro* 34:2858-5 N '15
- Hamilton electric incinerator. *Il Elec Ry J* 46:115-16 Ji 17 '15; Same. *Eng. N.* 74:49-51 Ji 8 '15; Same. *Ity* 11 67:213-14 Ag 14 '15
- Heavy electric reversing mills. W. Sykes. *Il Iron Tr R* 55:1181-3+ D 24 '14
- How electricity is used in handling sea-food. *Il Elec W* 66:450-1 Ag 28 '15
- How one operator controlled an air-compressor motor and used it to drive a direct-current generator. H. R. Smith. *Il Elec W* 66:468 Ag 28 '15
- Improving motor drive in a corset factory. *Il Elec W* 65:1352 My 15 '15
- Individual motor drive in pen and pencil factory. *Il Elec W* 65:110 Ja 9 '15
- Industrial applications of electricity. A. R. Bush. *Il Gen Elec R* 18:460-82 Ja '15
- Large electric hoist. W. Sykes. *Il Eng. Am Inst 10 10 Pro* 34:1819-27 Ag '15
- Large steel-mill motor drive. *Il Elec W* 66: 1089-90 N 13 '15
- Motor drive adopted for compressors and other equipment in loading (l'a.) ice plant. A. L. Hart. *Il Elec W* 66:1147-8 N 20 '15
- Motor drive for a Bradley helve hammer. W. M. Johnston. *Il Eng. Ry Age* (Moeh ed) 89: 184 Ap '15
- Motor drive in a rock-drill factory. F. D. Burr. *Il Elec W* 65:1700-1 Ja 26 '15
- Motor drive in marble works. *Il Elec W* 65:1192 My 8 '15
- Motor-driven, high-pressure gas pumping installation. J. S. Haug. *Am Gas Light J* 103: 315-16 N 15 '15
- Motor driving in European cement works. *Il Elec R & W Elec'n* 66:1050-1 Ja 5 '15
- Motor service in a large bolt factory; electrical distribution system of the Reed & Prince manufacturing company, Worcester, Mass. *Il Eng. Elec W* 65:1188-91 My 8 '15
- Motor sizes for flour-mill machinery. *Il Elec W* 65:418-19 I 13 '15; Same cond. *Ind Eng* 15: 83-4 Ag '15
- Motors operating 3600 r.p.m. directly connected to woodworking surfaces. *Il Elec W* 66:643-4 S 18 '15
- Motors show saving in replacing gasoline engines in brickyard. *Il Elec W* 66:258 Ji 31 '15
- Motors simplify operations in milk depot. J. L. Whitte. *Il Elec W* 66:353-5 Ag 14 '15
- Need of studying energy consumption of manufacturing operations. *Il Elec W* 66:144 Ji 17 '15
- Operating factory motors. S. P. Goodale. *Il Eng. Elec W* 66:533-4 S 4 '15
- Plant problem solved by purchased service; American manufacturing company, Brooklyn. *Il Elec W* 66:628-33 S 18 '15
- Reversing motor planer drive. *Il Ind Eng* 14: 455-6 D '14
- Selection and application of motors. C. Fox. *Il Elec R & W Elec'n* 66:348-50 I 20 '15
- Use of current for operating cranes to remove trucks from under car bodies. R. M. Hewitt. *Il Elec Ity J* 46:638 S 25 '15
- Use of electricity in a newspaper plant; motor and control equipment for production of New York times. *Il Elec W* 66:1627-31 Jo 10 '15

See also Electric distribution; Electric motors; Electric power; Electric transmission; Electricity in refrigeration; Power transmission

Electric elevators. See Elevators, Electric

Electric engineering

Advances in electricity. *Il Power* 42:366-8 H 14 '15

Am. Inst. 10. 10. midwinter convention, New York city, February 17-19, 1915. *Il Elec R & W Elec'n* 66:389-90 I 27 '15

Am. Inst. 10. 10. Panama-Pacific convention, San Francisco, September 16-18. *Il Elec R & W Elec'n* 67:507-73 S 25 '15

Am. Inst. 10. 10. 52d annual convention, Dear Park, Md., June 23-July 2; abstracts of papers and discussions. *Il Elec R & W Elec'n* 67:60-75 Ji 10 '15

Electric engineering—(continued)

- Am. Inst. E. E. 32d annual convention, Deer Park, Md., June 29-July 2; abstracts of papers and discussions. *Elec W* 66:9-11, 62-7 J1 3-10 '15
- Applied electrical science in 1914. A. E. Kennelly. *Elec W* 65:4-5 Ja 3 '15; Same. *Sci Am* 8 79:51 Ja 23 '15
- Birmingham local section; chairman's address. A. H. Tuller. *Inst E E* J 53:263-8 F 1 '15
- Electrical developments. J. Snell. *Elec R & W* *Elec'n* 65:1097 D 5 '14
- Electrical engineering and race programs. *Sci Am* 8 79:307 My 15 '15
- Electrical engineering problems. R. G. Hudson and W. V. Lyon. See weekly numbers of *Electrical review* and *western electrician*
- Electrical papers at Manchester meeting of British association for the advancement of science. *Elec R & W* *Elec'n* 67:372-8 O 9 '15
- Electricity in the construction and operation of the Panama canal. J. Schildhauer. *Diag* *Gen Elec R* 18:amp879-780 J1 '15
- Biographical address of president. J. Snell. *Inst E E* J 53:1-13 D 1 '14
- Indexing of electrical engineering subjects. *Elec W* 65:1026-7, 1229 Ap 24, My 15 '15
- International engineering congress; discussions on subjects pertaining to the electrical industry. *Elec W* 66:732-4 O 2 '15
- International engineering congress; report of electrical and related sessions, San Francisco, Sept. 20-25. *Elec R & W* *Elec'n* 67:614-18 O 2 '15
- Minnesota electrical association 8th annual convention. *Elec R & W* *Elec'n* 66:837-41 Ap 3 '15
- New England question box convention. *Elec R & W* *Elec'n* 66:537-40, 598-600 Mr 20-27 '15
- Proposed changes in the code to be considered by electrical committee. *Elec R & W* *Elec'n* 66:337-40 F 20 '15
- Recent electrical progress. *Engineer* 119:11-12, 33-5 Ja 1-8 '15
- Review of the year 1914: electricity. *Sci Am* 112:7 Ja 2 '15
- Trend of electrical development. P. M. Lincoln. *Am Inst E E* *Proc* 34:1491-1502 Ag '15; Same. *Gen Elec R* 18:784-9 Ag '15; Abstract. *Sci Am* 8 80:282-3 O 30 '15
- When electricity was really in its infancy. F. B. Crocker. *Diag* *Gen Elec R* 18:784-9 Ag '15
- Wisconsin electrical association. *Elec R & W* *Elec'n* 66:206-9 Ja 30 '15
- See also* Armatures; Commutation (electricity); Dynamoes; Electric apparatus and appliances; Electric contractors; Electric distribution; Electric driving; Electric heating; Electric lighting; Electric lines; Electric machinery; Electric measurement; Electric motors; Electric motors; Electric plants; Electric railroads; Electric transmission; Electric wire and wiring; Electricity; Electricity in construction work; Electricity in mining; Electricity in war; Electricity on ships; Electricity on the farm; Hydroelectric plants; Railroads—Electricity; Telegraph; Telephone; Wireless telegraph
- Examinations**
- Examination papers set at the associate membership examination of the Institution of electrical engineers, April, 1915. *Inst E E* J 53:748-55 My 15 '15
- Laws and regulations**
- Comparative insulation requirements in the United States and European countries. *Elec R & W* *Elec'n* 65:1133 D 12 '14
- Construction details of temporary motor installations. *Elec R & W* *Elec'n* 65:1089 D 5 '14
- Electrical code and license law for New York. *Elec W* 66:103 J1 10 '15
- Electrician's registration bill becomes law in Massachusetts. *Elec R & W* *Elec'n* 66:1151-2 Ja 10 '15
- Installation rules for gas-filled incandescent lamps. *Elec R & W* *Elec'n* 67:896 N 13 '15
- Massachusetts electricians' licensing bill. *Elec W* 65:1575 Je 12 '15
- New electrical code for New York. *Elec R & W* *Elec'n* 67:756-7 O 23 '15
- New electrical rules in Springfield, Mass. *Elec R & W* *Elec'n* 66:425 Mr 6 '15

Wisconsin commission to adopt standards of electrical construction and operation. *Elec W* 66:909 O 23 '15

Wisconsin standards of electrical construction and operation. *Elec R & W* *Elec'n* 67:798 O 30 '15

See also Electric inspection; Electric wire and wiring

Safety devices and measures

- Changes in National electrical code. *Elec W* 65:878-80 Ap 3 '15
- Defense of the Safety code. R. L. Brown. *Elec R & W* J 45:939-41 My 15 '15
- Electrical safety rules issued. S. W. Stratton. *Elec W* 65:1102-6 My 1 '15
- Improvements in linemen's protectors. *Diag* *Elec W* 65:743-4 Mr 20 '15
- National electrical code amended at conference in New York city. *Elec R & W* *Elec'n* 66:624-8 Ap 3 '15
- National electrical safety code. R. B. Rosa. *Elec W* 65:845-7 Ap 3 '15
- National electrical safety rules. R. B. Rosa. *Elec W* 65:915-17 Ap 10 '15; Same. *Elec R & W* J 45:750-1 Ap 17 '15
- Precautions to be observed in inserting cart-ridge fuses. T. H. Beardon. *Diag* *Elec R & W* *Elec'n* 66:682-4 Ap 10 '15
- Proposed national electrical safety code; preliminary edition. U S Bur Stand Circ 54:1-137 Ap '15
- Safeguarding electrical installation. R. L. Wentz. *Iron Tr R* 57:575 8 23 '15
- Safety rules to be observed in the operation and maintenance of electrical equipment and lines. U S Bur Stand Circ 49:1-50 '14; Abstract. *Elec R & W* *Elec'n* 65:518-19 Ag 29 '14; Abstract. *J Fr Inst* 178:350-4 S '14; Abstract. *Power* 40:806-7 D 8 '14
- Taking no chances with electricity. W. Greenwood. *Iron Tr R* 57:535-6 S 16 '15
- Wisconsin considers safety rules. *Elec W* 66:559-60 O 30 '15
- Work of Bureau of standards on safety rules for electrical practice. S. W. Stratton. *Elec W* 64:1188 9 D 19 '14

See also Electric protective apparatus

Study and teaching

- Apprentice system at the Lynn works of the General electric company. T. Bodde. *Gen Elec R* 18:336-7 Ja '15
- New advanced course in electrical engineering at Columbia university. W. T. Slichter. *Diag* *Elec R* 18:340 4 O '15
- Statistics of electrical engineering courses. *Elec W* 66:862 O 16 '15

See also Chicago central station institute

Electric engineers

- Address to the students' section of the Institution of electrical engineers. J. Snell. *Inst E E* J 53:757-62 Je 1 '15
- Electrical graduates in 1914: statistics. *Elec W* 64:1135 D 12 '14
- Trained man and his opportunity discussed by Minnesota engineers and Joviana. *Elec R & W* *Elec'n* 65:1143 D 12 '14

Electric equipment

- Electrical construction details of Butler brothers building. Chicago. N. G. Monda. *Diag* *Elec R & W* *Elec'n* 65:1183-36 Ja 26 '15
- Electrical equipment and efficient features of the new office building of the Hartford electric light company. *Diag* *Elec W* 65:206-9 Ja 23 '15
- Electrical equipment of Belmont tunnel cars. *Diag* *Elec R & W* J 45:764-5 Ap 17 '15
- Electrical service in furniture store of the Paine furniture company, Boston. *Diag* *Elec W* 65:674-5 Mr 13 '15
- Equipment of large publishing house; power plant, interior wiring and special features of the Curtis publishing company's building, Independence square, Philadelphia. *Diag* *Elec W* 65:905-11 Ap 10 '15
- Use of electricity in a dental infirmary. *Diag* *Elec W* 66:203-4 J1 24 '15
- See also* Automobiles—Electric equipment; Electric apparatus and appliances; Electricity on ships; Garages, Electric; Railroads—Electric equipment

Electric fans. See Fans, Electric

Electric fittings

- Benjamin outlet-box fittings and fixtures. *Il Elec R & W Elec'n* 67:588 S 26 '15
 Pagrip metal molding and fittings therefor. *Il Elec R & W Elec'n* 66:786-7 Ap 24 '15

Electric flatirons. See Electric irons

Electric furnaces

- Aluminum nitride. *diag Met & Chem Eng* 13:504 Ag '15
 Big electric induction furnaces built in 1914. *Il Iron Tr R* 56:335-6 F 11 '15
 Buffalo electric steel foundry. *Il C. Estep. Il plan Iron Tr R* 56:215-19 Ja 28 '15; Same. *Foundry* 43:1-5 Ja '15
 Commercial applications of resistance furnaces; abstract. *C. W. Bartlett. Elec W* 65:1528 Je 12 '15
 Comparative furnace efficiency. *R. J. Welt-laner. Met & Chem Eng* 13:357-61 Jo '15
 Cost of electric furnace steel; experience with the Snyder furnace. *F. T. Snyder. Il diag Iron Age* 96:926-8 O 21 '15
 Developments in electric brass furnace melt-ing; new type to utilize the pinch effect. *G. H. Clamer and C. Hering. Il diag Foundry* 42:487-90 D '14; Same cond. *Iron Age* 94:1492-5 D 31 '14; Abstract. *Ind Eng* 15:566-7 F '15
 Developments in electrical apparatus during 1914. *J. Liston. Il Chem Elec R* 18:89-90 F '15
 Electric annealing furnaces. *Iron Age* 95:1017 My 6 '15
 Electric furnace and the melting of alloys. *It. S. Wile. Iron Age* 95:1068-9 My 13 '15
 Electric furnace electrodes—their manufacture and use. *C. A. Barnett. Il diag Sibley J* 30:27-32 O '15
 Electric furnace for gold refining at the Alaska-Treadwell cyanide plant. *W. L. Jones. Il diag Am Inst Min E Bul* 103:1443-7 J1 '15; Same. *Met & Chem Eng* 13:566-7 S 1 '15; Excerpt (Electric precipitate-melting fur-nace) *Eng & Min J* 100:270-1 Ag 14 '15; Abstracts. *Elec W* 66:251 J1 31 '15; *Eng M* 50:456 J '15; Discussion. *Am Inst Min E Bul* 108:2460-8 D '15
 Electric furnace for reheating, heat treating and annealing. *T. R. Bully. Eng Soc W Pa* 31:255-72 Ap '15; Same. *Met & Chem Eng* 13:558-61 S 1 '15; Same cond. *It. Age (Mech ed)* 89:181-2 S '15; Abstract. *Am Soc M J* 9 J 37:415-16 J1 '15; Excerpt (Heating soaking pits by electricity) *Iron Tr R* 57:105 Ag 26 '15; Discussion. *Eng Soc W Pa* 31:272-83 Ap '15
 Electric furnace in metallurgical work. *D. A. Lyon, It. M. Keeney, and J. R. Cullen. Ill-diag U S Bur Mines Bul* 77:1-207 '14; Excerpt (Electric smelting of ferro-alloys). *Iron Tr R* 56:717-22 J1, 765-7 J1, 802-7 J1, 972-5 Ap 8-15, 20, My 13 '15
 Electric furnace in the foundry. *W. C. Kranz. Am Inst Min E Bul* 101:927-30 My '15; Same. *Foundry* 43:164-5 Ap '15; Same. *Iron Age* 95:740-1 Ap 8 '15; Same. *Met & Chem Eng* 13:555-6 S 1 '15; Discussion. *N. Feltner. Am Inst Min E Bul* 108:2507-11 D '15; Same. *Met & Chem Eng* 13:650 O 1 '15
 Electric furnace in the foundry. *J. H. Gray. diag Iron Age* 96:798-800, 878-81 O 7-14 '15
 Electric furnace in the foundry. *R. C. Gos-row. Met & Chem Eng* 13:882-3 J1 '15
 Electric furnace in the foundry. *W. L. Morri-son. Iron Tr R* 57:177-9 J1 23 '15
 Electric-furnace load as a central-station pos-sibility. *Elec R & W Elec'n* 67:13-14 J1 3 '15
 Electric-furnace power loads; abstract. *F. T. Snyder. Elec W* 65:1527 Ja 12 '15
 Electric furnace steels for dynamic straining. *J. T. Schipper. Il diag Automobile* 33:865-9 N 11 '15
 Electric iron-ore smelting in Norway. *diag Elec R & W Elec'n* 67:54 J1 10 '15
 Electric muffle furnace for the determination of carbon and oxygen in steel and tungsten powder. *C. M. Johnson. Il Met & Chem Eng* 13:17 Ja '15
 Electric pig iron in Norway; a new type of furnace using coke successfully—cost data. *diag Iron Age* 95:1120 My 20 '15
 Electric steel. *F. T. Snyder. Il diag Iron Tr R* 55:1077-82+, 1127-30+ D 10-17 '14
 Electric steel direct from ore fines. *A. C. Dal-ton. Iron Age* 96:1184-5 N 13 '15

Electric steel furnace. *P. H. Berggreen. Sibley J* 29:133 Ja '15

Electric steel furnace of new design; the Wile arc type. *R. S. Wile. Il diag Iron Age* 96:868-8 O 14 '15

Electric steel in Germany and Austria. *Met & Chem Eng* 13:398 Jo '15

Electric steel industry's present status. *Iron Age* 95:94-8 Ja 7 '15

Electric steel-making furnaces. *T. D. Robert-son. diag Inst E & J* 53:533-9 Ap 1 '15; Abstract. *Elec R & W Elec'n* 66:308-9 F 13 '15; Discussion. *Inst E & J* 53:559-61 Ap 1 '15

Electric steel production. *Eng & Min J* 100:224 Ag 7 '15

Electrical steel by the acid process; abstract. *A. Miller. Met & Chem Eng* 13:540 S 15 '15

Electro-metallurgical industries as possible consumers of electric power. *D. A. Lyon and It. M. Keeney. Am Inst Min E Bul* 104:1707-30 Ag '15; Excerpt. *Iron Age* 96:360-2 Ag 12 '15

Evolution of the electric furnace. *K. G. Frank. Iron Tr R* 57:901-3 N 4 '15

Feasibility of coal ash in various atmospheres. *A. C. Klehmer and A. L. Hall. diag J Ind & Eng Chem* 7:404, 474-81 My-Jo '15

Heat losses from an electric furnace. *W. H. Wills and A. H. Schuyler. Iron Age* 96:1052-3 N 4 '15

Heat treatment in automatic electric furnaces; with discussion. *T. R. Bully. Iron Age* 96:993-5 O 28 '15; Same cond. *Iron Tr R* 57:833, 855 O 28 '15

Herault furnaces for foundry use. *Il diag Iron Tr R* 56:976-8 My 13 '15; Same. *Foundry* 43:225-7 Jo '15

High temperature experimental furnace. *W. R. Mahan. diag Met & Chem Eng* 13:70 F '15

Improved laboratory furnace. *C. M. Johnson. Il Iron Tr R* 56:613-14 Mr 25 '15

Limitations of the electric furnace in the manufacture of steel castings. *G. F. Lake. Met & Chem Eng* 13:137-8 Mr '15

Limitations of the electric furnace in the manufacture of steel castings. *G. Muntz. Met & Chem Eng* 13:108-10 F '15

Making steel by electricity. *diag Sci Am S* 70:206-7 Mr 27 '15

Manufacture of electric steel in the Stobie furnace. *V. Stobie. Engineer* 119:616-17 Jo 18 '15; Excerpt. *Iron Age* 95:1171 My 27 '15

New nitrogen fixation furnace. *diag Eng M* 49:104-5 Ap '15

Open hearth versus the electric furnace in the manufacture of commercial steels. *H. Cor-nell. Met & Chem Eng* 13:530-1 S 15 '15

Power consumption of electric furnaces. *W. L. Morrison. Iron Age* 94:1402-3 D 17 '14

Progress in the iron and steel industry and the electric furnace. *K. G. Frank. Am Inst Min E Bul* 103:2547-54 O '15

Quick heating electric furnace for the deter-mination of carbon in steel, etc., with train. *C. M. Johnson. Il J Ind & Eng Chem* 7:960 N '15

Reinhardt electric furnace. *diag Eng & Min J* 99:400-2 F 27 '15; *J Ind & Eng Chem* 7:159 F '15; *Met & Chem Eng* 13:702-3 O 1 '15

Results of electric-furnace operation in Alaska-Treadwell gold mine. *Elec R & W Elec'n* 67:987 N 27 '15

Smelting of copper ores in the electric fur-nace. *D. A. Lyon and It. M. Keeney. diag U S Bur Mines Bul* 81:1-76 '15

Stobie arc-furnace operation at Redondo, Cal.; abstract. *W. M. McKnight. Elec W* 65:1527 Jo 12 '15

Steel making in the electric furnace. *J. H. Gray. Iron Age* 96:1238-9 N 25 '15; Excerpt. *Met & Chem Eng* 13:650-7 O 1 '15

Thermal efficiency of the electric furnace. *W. M. Johnson. Eng Soc W Pa* 31:488-98 J1 '15; Excerpt. *Iron Tr R* 57:491 S 9 '15; Dis-cussion. *Eng Soc W Pa* 31:499-509 J1 '15

Use of electricity in melting brass. *It. G. Dorsey. Il diag Iron Tr R* 57:319-30 J1 Ag 12 '15

See also Electric heating; Electrometal-lurgy

Bibliography

Electric furnace in metallurgical work. *D. A. Lyon, It. M. Keeney, and J. R. Cullen. U S Bur Mines Bul* 77:190-207 '14

Electric fuses

Brooklyn company employs porcelain-clad high-tension fuses. *Ellec W* 66:360 F 6 '15
 Controversy over refillable fuses. *Ellec W* 66:126 J 17 '15
 Heating on renewable fuses. *Ellec R & W Ellec'n* 67:108-9 J 17 '15
 High-potential pole-type cut-out. *Ellec W* 66:823-4 O 9 '15

Electric garages. See Garages, Electric

Electric generators. See Dynamos

Electric hammers

Operation of the Western electric hammer. *Ellec R & W Ellec'n* 67:858-9 N 6 '15

Electric heaters

Another electrical adjunct to the gasoline automobile. *Ellec W* 66:981 O 30 '15
 Apol electric heaters. *Ellec't & Ven* 12:56 Mr '15
 Electric air warmers. *Ellec R & W Ellec'n* 67:142 S 4 '15
 Electric heater for shrink fits. *Ellec Ry J* 46:960-1 N 6 '15
 Electric heater to prevent gasoline automobiles from freezing in cold garages. *Ellec R & W Ellec'n* 67:980 N 27 '15
 Electric heating and electric heater control. *W: S. Hammond, Jr. Ellec's Am Soc Heat & V 10 20:279-93 '14*
 Light-weight all-steel panel heater. *Ellec Ry J* 46:773 O 9 '15
 Radiant electric heater. *Ellec W* 66:768 O 2 '15

See also Electric water heaters

Electric heating

Developments in electric heating for shoemaking machinery. *Ellec W* 66:816 O 9 '15
 Electric cooking and heating in private houses; with discussion. *W. A. Elliott. Inst E 16 J 53:42-63 J 1 '14*
 Electric heating and cooking. *P. W. Gunter. Ellec Am* 113:496 J 14 '15
 Electric heating and electric heater control. *W: S. Hammond, Jr. Ellec's Am Soc Heat & V 10 20:279-93 '14*
 Electric heating and heat storage; abstract. *M. Semenza. Ellec R & W Ellec'n* 67:130 S 4 '15
 Electric heating and heating appliances. *C. P. Randolph. Ellec R & W Ellec'n* 67:523-6 Jc '15
 Electric-heating appliance showroom. *Ellec W* 66:800-3 Mr 27 '15
 Electric heating as applied to marine service. *C. S. McDowell and D. M. Mulholland. Am Inst E 16 10 33:861-72 Jc '14; Discussion. 33:1891-6 D '14*
 Electric heating in Seattle. *Ellec't & Ven* 12:25-7 Ja '15
 Electric-heating resistors; abstract. *Lauch. Ellec W* 66:76-7 J 10 '15
 Further developments of electric heating in Seattle. *Ellec't & Ven* 12:42-3 Mr '15
 Heating and ventilating an office building by electricity: Hydraulic power co.'s plant at Niagara Falls. *C. F. Herington. Ellec's plan Heat & Ven* 12:13-23 Jc '15
 New possibilities of electric heating and cooking brought out in meeting of British central stations. *Ellec R & W Ellec'n* 66:334 F 20 '15
 Operating costs of electric heating devices. *Heat & Ven* 12:58 Ap '15
 Practical aspects of electric heating. *Heat & Ven* 11:27-9 D '14
 Sales arguments for electrically heated japanning ovens. *D. Rollins. Ellec W* 66:43-4 Ja 2 '15
 Stockholm investigation on electric heating; abstract. *C. A. Rosander. Ellec W* 66:165 Ja 16 '15
 Study of car-heating requirements. *Ellec Ry J* 46:103-4 Ja 9 '15

See also Rollers -Electric heating; Electric furnaces; Electric heaters; Electric water heaters

Electric heating association, Industrial. See Industrial electric heating association

Electric industries

Business hints for dealer and contractor. *(1.) Crain, Jr. Ellec R & W Ellec'n* 67:824-5 Ag 21 '15
 Copper and the electrical industry. *Ellec W* 66:1017-19 N 6 '15

Electric power industry. *D: R. Rushmore. Ellec R & W Ellec'n* 67:427-39 Jc '15
 Electrical merchant—who will he be? *E. M. Whitehouse. Ellec W* 66:697-701 S 25 '15
 Federal trade commission investigates the foreign market for American electrical goods. *W. Lawcett. Ellec R & W Ellec'n* 67:292-4 Ag 14 '15
 Guaranteeing sales on a money-back basis. *W. N. Matthews. Ellec W* 66:809 Mr 27 '15
 Interesting the non-electrical public. *F. H. Gale. Ellec W* 66:1184-6 N 27 '15
 Place of the middleman—the Jobber. *W. R. Herstein. Ellec W* 66:1036-7 N 6 '15
 Supplies; devices and appliances for the distribution, control and utilization of electricity. *S. H. Blake. Ellec R & W Ellec'n* 67:553-5 Jc '15
 Thirty-five years of lamp sales. *Ellec W* 66:800-1 O 16 '15; Abstract. *Illum Engr* 8:456-7 N '15
 Year in the electrical industry. *Ellec R & W Ellec'n* 66:6-13 Ja 2 '15

See also Electric contractors; Electric plants; Electric power; Electric service companies; Electric shops; Electric vehicle industry; Electrochemistry; Electrometallurgy; also Electrical prosperity week; National association of manufacturers of electrical supplies

Brazil

Electrical opportunities in Brazil. *Ellec R & W Ellec'n* 66:1598; 66:156-7, 425-6 Jc 19, J 17, Ag 21 '15

Great Britain

Development of the supply of electricity in Great Britain. *A. H. Seabrook. Ellec R & W Ellec'n* 66:761-3 Ap 24 '15
 Electrical affairs in Great Britain during 1914. *A. H. Bridge. Ellec R & W Ellec'n* 66:13-16 Ja 2 '15
 Electrical industry in England in 1914. *H. Harbison. Ellec W* 66:8-9, 971 Ja 2, Ap 17 '15

India

British India. *I' S Sp Cons Rep* 72:86-99 '15
 Calcutta local section; chairman's address. *W. H. Everett. Inst E 16 J 53:466-70 Mr 16 '15*
 Development of electric power for industrial purposes in India. *H. R. Speyer. Inst E 16 J 53:597 601 Ap 15 '15*

Russia

Electrical development in Russia. *L. W. Schmidt. Ellec W* 66:1719-20 Jc 26 '15
 Installations, systems and appliances. *P. Gurs-witsch. Ellec W* 66:1465-6 Jc 5 '15

Siberia

Opportunities for electrical manufacturers in Siberia. *Ellec W* 66:267 Ja 23 '15

South America

Electrical conditions in Buenos Aires and Argentina. *Ellec R & W Ellec'n* 66:124-6 Ja 16 '15
 Trade opportunities in South America. *Ellec W* 64:1172-3 D 12 '14

Switzerland

Foreign business of the Swiss electrical industry for 1914 compared with preceding year. *Ellec W* 66:1131 N 29 '15

United States

American electrical industries in 1914. *T. C. Martin. Ellec W* 66:13 Ja 2 '15
 Continued gain in light and power industry. *Ellec W* 66:456-8 Ag 28 '15
 Electric supply company. *Memphis, Tenn. Ellec R & W Ellec'n* 66:526-7 Mr 20 '15
 Electrical exports for May. *Ellec R & W Ellec'n* 67:180 J 31 '15
 Electrical industry and the war. *M. Z. Mitchell; H. M. Hylleberg; H. T. Redline. Ellec W* 66:398-9 Ag 21 '15
 Future prospects of the electrical export business. *M. A. Chudin. Ellec W* 66:14-16 Ja 3 '15
 How is business? comment by manufacturers. *Ellec R & W Ellec'n* 67:413-16 S 4 '15
 Increase in alternating-current service in New York. *J. K. Becker. Ellec W* 66:568 F 27 '15

Electric Industries—United States—Continued

- National electrical week. S. M. Kennedy. *Elec W* 65:588-9 Mr 8 '15
 New England contractors and central-station men hold co-operative meeting. *Elec R & W Elec'n* 66:898-9 My 15 '15
 Ohio electric light association meeting of the committee on new business co-operation. *Elec R & W Elec'n* 67:555-6 S 25 '15
 Outlook in other industries; comment by editors of various trade publications. *Elec R & W Elec'n* 67:417-27 S 4 '15
 Society for electrical development, annual meeting, New York, May 11. *Elec W* 65:1265-6 My 15 '15
 Statistics in the census returns. *Elec W* 65:93 Ja 9 '15
 Suggested national electrical week. *Elec W* 65:183, 276-8 Ja 16, 30 '15
 Suggestion advanced for a national electrical week. *Elec R & W Elec'n* 66:170 Ja 23 '15
 Supply manufacturers organize. *Elec W* 65:693-4 Mr 13 '15
 Western electric company's annual electrical supply year book. *Elec R & W Elec'n* 66:42-3 Ja 2 '15

Electric Inspection

- Electrical inspector, his work and his standard. T. H. Day. *Elec R & W Elec'n* 66:117-18 Ja 16 '15
 Problems in electrical inspection at the Panama-Pacific International exposition. G. A. Cleary. *Elec R & W Elec'n* 67:23-4 Jl 3 '15
 Western association of electrical inspectors 10th annual meeting, Minneapolis, Minn., Jan. 28. *Elec R & W Elec'n* 66:267-61 F 6 '15

Electric Instruments

- Electrical measuring instruments. *U S Bur Stand Circ* 261:57 '15

See also Electric apparatus and appliances; Electric measurement; Electric motors; Electric testing; Electrodynamometers

Electric insulation. See Insulation**Electric Irons**

- Almost a ton of evidence. *Il Elec W* 66:475 Ag 28 '15
 Automatic electric iron for window display. F. D. Burr. *Elec R & W Elec'n* 66:485 Mr 13 '15
 Electric iron with heat intensified at point. *Il Elec W* 66:1218 N 27 '15
 Flatiron sold every seven seconds. *Elec W* 66:200-1 Jl 24 '15

Electric Laboratories

- Improved electrical laboratory apparatus. C. M. Johnson. *Il J Ind & Eng Chem* 7:960-1 N '15
 Industrial research. L. A. Hawkins. *Il Gen Elec R* 18:416-27 Jo '15
 Life-testing equipment for tungsten lamps; electrical features of the incandescent lamp-testing laboratory at Nela Park, Cleveland. *Il plan Elec W* 66:12-16 Jl 3 '15
 Recent researches in electricity at the Bureau of standards. H. B. Row. *Il plan J Fr Inst* 180:539-59 N '15
 200-mile artificial transmission line. C. W. Magnuson, J. Gooderham and R. Rader. *Il diag Elec W* 65:1546-9 Jo 12 '15

Electric lamp socket appliances. See Electric apparatus and appliances**Electric lamps**

- Arc lamps versus half-watt tungsten lamps; abstract. A. Chevalier. *Elec W* 66:75 Jl 10 '15
 Arc light; the incandescent lamp. E. Weston. *J Ind & Eng Chem* 7:251-2 Mr '15
 Business hints for dealer and contractor. G. D. Crain, jr. *Elec R & W Elec'n* 67:922-3 N 20 '15
 Census returns on electric lamps. *Elec W* 65:243-4 F 6 '15
 Cleveland lantern for ornamental lighting. W. Harrison. *Il Elec W* 66:521-4 S 4 '15
 Color of illuminants; with discussion. L. A. Jones. *diag Illum Eng Soc* 9:687-709 no 8 '14
 Comparative cost of magnetite-arc and nitrogen-filled tungsten street-lighting units. J. H. Loban. *Elec W* 66:109 Jl 10 '15
 Edward Weston's inventions. L. H. Backeland. *por Sci Am S* 79:108-9 F 13 '15
 Electric incandescent lamps. *Illum Eng* 7:513-14, 547-8 N-D '14

- Electric lamp industry. G. F. Morrison. *Il Gen Elec R* 18:497-503 Jo '15
 Experiments on the heating of screw-socket lampholders. C. C. Paterson. *Il diag Inst* 19 R J 53:17-21 D 1 '14
 Gaseous-conductor lamp for color matching; abstracts. D. M. Moore. *diag Elec W* 66:1100 N 20 '15; *Elec R & W Elec'n* 67:949 N 20 '15; *Met & Chem Eng* 13:885 D 1 '15
 Incandescent versus arc lamps. *Elec W* 65:898-9 Ap 10 '15
 Incandescent versus arc lamps. H. E. Clifford. *Elec W* 65:1594-5 Jo 19 '15
 Indicating key socket. *Il Elec R & W Elec'n* 65:1098 D 5 '14
 Moore light in Spain. *Il Illum Eng* 8:324-6 Jl '15
 N. J. L. A. lamp committee report. *Elec W* 65:1520-1 Jo 12 '15
 N. J. L. A. lamp committee report. G. F. Morrison. *Gen Elec R* 18:926-8 S '15
 Neon light tubes. J. Boyer. *Il Sci Am S* 78:410 D 26 '14
 Photographic value of various illuminants. *Illum Eng* 8:347 Ag '15
 Portable electric reading lamp which the carpenter can make. E. H. Crussell. *Il diag Illdg Age* 37:45-8 D '15
 Selecting lighting units on the basis of results. C. H. Chumpton. *Elec W* 65:1028-9 Ap 24 '15
 Year in the electrical industry. *Elec R & W Elec'n* 66:9-10 Ja 2 '15

See also Electric lanterns; Electric light fixtures; Electric lighting; Locomotive headlights; Safety lamps, electric; Searchlights

Testing

- Lamp-testing instruments. *Il Elec W* 66:423 Ag 31 '15
 Street-illumination tests; committee report. *Elec W* 65:1521-2 Jo 12 '15
Electric lamps, Arc
 Arc lamps; committee report. *Illum Eng Soc* 10:525-7 no 7 '15; *Samo. Illum Eng* 8:445-6 N '15; Same cond. *Am Gas Light J* 103:274 N 1 '15
 Arc-light controller for motion picture projection apparatus. *Il Sci Am* 112:272 Mr 20 '15
 Arc with unconsumed electrodes; abstract. W. A. Darrall. *Il Elec W* 66:1099-1100 N 13 '15
 Chemistry of flaming arc carbons. W. C. Moore. *Met & Chem Eng* 13:52-5 Ja '15; *Samo. Sci Am S* 79:122-3 F 20 '15; Abstract, with discussion. *Elec R & W Elec'n* 66:823-4 My 1 '15
 Compensate for motion-picture projectors. C. Vailford. *diag Elec R & W Elec'n* 67:230-1 Ag 7 '15
 Conditions determining the candle-power and steadiness of large current arcs for searchlights. *Il. Ayrton. Illum Eng* 8:78-81 F '15
 Current supply for motion picture machines. H. R. Johnson. *Il diag Gen Elec R* 18:895-904 S '15
 Development of the flame carbon. R. T. Chillum, jr. *Illum Eng Soc* 9:710-15 no 8 '14
 Electric arc in vapors and gases at reduced pressures. W. A. Darrall. *Il diag Met & Chem Eng* 13:915-18 D 1 '15
 Flame-arc lighting of Indianapolis streets. *Il Elec W* 66:452-3 Ag 28 '15
 Installation of luminous arc lamps in Worcester. *Il Elec R & W Elec'n* 66:26-8 Ja 2 '15
 Integrating sphere and arc lamp photometry; with discussion. N. K. Chaney and M. L. Clark. *Illum Eng Soc* 10:1-37 no 1 '15
 Luminous arc lamp. R. B. Hussey and H. C. Rogers. *Il diag Elec R & W Elec'n* 67:399-404 S 4 '15
 Modern arc lamps. C. H. Stephens. *Il diag Elec R & W Elec'n* 67:409-12 S 4 '15
 Paint and dye testing; use of the white flame arc as a standard. W. R. Mott. *Sci Am S* 80:350-2 N 27 '15
 Present status of arc-lamp carbons. V. A. Clarke. *Il Elec R & W Elec'n* 67:406-8 S 4 '15
 Rotary brush for washing arc-lamp inner globes. *plan Elec W* 66:597 S 11 '15

Electric lamps, Arc *Continued*

Status of arc lamp as street illuminant. *Elec W* 65:1070 Ap 24 '15

Street lighting with modern arc lamps. *W. P. Hurley, Illum Eng Soc* 10:105-6 no 5 '15

See also Electric lamps, Mercury vapor

Electric lamps, Incandescent

Another Edison anniversary. *Il Power* 42:565-6 O 19 '15

Edison and the invention of the electric incandescent lamp. *Il Elec R & W Elec'n* 67: 676-8 O 9 '15; Same abstr. *Foundry* 43:404 O '15

Electric incandescent lamps. *Illum Eng'r* 7:513-14, 547-8 N-D '14

Electric incandescent lamps; committee report. *Illum Eng Soc* 10:520-5 no 7 '15; Same, *Illum Eng'r* 8:111-14 O '15; Same cond. *Am Gas Light J* 103:273-4 N 1 '15

Electric light a factor in civilization. *S. B. Iwama, W Soc R J* 20:1-14; Discussion. 20: 14-26 Ja '15

Filament size and intensity of projected beam. *L. C. Porter, Elec W* 66:177 Ji 21 '15

Incandescent headlights and projectors. *L. S. Bailey, Il Illum Eng Soc* 10:271-80 no 3 '15

New outdoor incandescent lighting unit. *disa* *Elec R & W Elec'n* 67:167 Ji 24 '15

Practical rating of electric incandescent lamps; with discussion. *F. W. Wilcox, disa* *Illum Eng'r* 8:163-85 Ap 1; Excerpt. *Elec W* 65:390 1 Ap 17 '15

Rating and designation of electric incandescent lamps; abstract of paper and discussion. *E. Solomon, Elec W* 65:1065; 66:10, 15, 137 Jo 5, Ji 3-17 '15

Rating of incandescent lamps in Germany. *Elec W* 66:598 8 11 '15

Thirty-five years of lamp sales. *Elec W* 66:860-7 O 16 '15; Abstract. *Illum Eng'r* 8:456-7 N '15

Visit to some of the leading electric lamp factories near London. *Il Illum Eng'r* 7:527-38 N '14

Year's progress in methods of making and selling incandescent electric lamps. *E. J. Edwards and R. E. Scott, Elec R & W Elec'n* 66:16-18 Ja 2 '15

See also Audion; Electric lamps, Tungsten; Electric lighting, Incandescent; Safety lamps, Electric

Testing

Rack and switchboard for life tests on series incandescent lamp. *Il disa* *Elec W* 65:40 Ja 2 '15

Electric lamps, Mercury vapor

Improved quartz mercury-vapor lamp for biological and photochemical investigations. *W. T. Boye, Il disa* *Am Chem Soc J* 37: 1721-6 Ji '15

Industrial lighting by mercury vapour lamps. *Il Illum Eng'r* 8:344-5 Ag '15

M-shaped tubular lamp for photographic enlarging. *Il Elec W* 66:427 Ag 21 '15; *Elec R & W Elec'n* 67:492 8 11 '15

Shop illumination by quartz lamps. *Il Ry Age (Mech ed)* 88:650 D '14

Sterilization of water by ultra-violet rays of the mercury-vapor quartz lamp. *M. van Beckinghausen, disa* *Am Inst E E Pro* 32:1049-62 Jo '14; Same cond. *Eng'g M* 47:760-5 Ag '14; Discussion. *Am Inst E E Pro* 33: 1908-12 O '14

Temperature of the mercury arc. *J. C. McLennan, Sci Am S* 70:107 F 13 '15

Electric lamps, Pocket

Improved battery-operated lamps. *Il Elec W* 66:718 S 25 '15

Pocket lamps. *Elec W* 66:541 S 4 '15

Electric lamps, Tungsten

Application of the new high-efficiency tungsten lamp to photography; with discussion. *M. Luckiesh, Il Illum Eng Soc* 10:149-80 no 3 '15

Card system for obtaining life records of gas-filled lamps. *Elec W* 65:1340 My 15 '15

Changes in details of gas-filled lamps. *Elec W* 65:1110 My 1 '15

Characteristic equations of tungsten filament lamps and their application in heterochromatic photometry. *C. W. Middlekauff and J. R. Skoglund, U S Bur Stand Bul* 11:483-594

My 27 '15; Abstract. *J Fr Inst* 179:97-9 Ja '15; Excerpt. *Illum Eng Soc* 9:734-68; Discussion. 9:769-74 no 8 '14

Characteristics of gas-filled lamps; with discussion. *G. M. J. Mackay, Illum Eng Soc* 9: 775-81 no 8 '14

Compensation for mazda C lamps. *Il. D. Brown, disa* *Gen Elec R* 18:596 Jo '15

Direct-reading device for use in computing characteristics of vacuum tungsten lamps (with computing chart). *J. R. Skoglund, U S Bur Stand Bul* 12:269-88 N 8 '15; Abstract. *J Fr Inst* 180:102-4 Ji '15

Experience with gas-filled lamps at Brooklyn. *Il Elec W* 66:210 Ji 21 '15

Experience with mazda gas-filled street lamps. *C. H. Shaw, Elec R & W Elec'n* 66:416 Mr 6 '15

Gas-filled lamp in photography. *Elec W* 66: 1154-6 My 8 '15

Gas-filled lamp studies at Boston Tech. *Elec W* 65:1571 Jo 12 '15

Gas-filled lamps. *G. Cotton; E. J. Edwards, Elec W* 65:1100-1 My 1 '15

Gas filled lamps showing remarkable longevity at Dubuque, Ia. *Il Elec W* 65:1709-10 Jo 26 '15

Gas-filled ornamental lighting at Rockville Center, N. Y. *A. L. Powell, Il Elec W* 66: 483 Ag 28 '15

High candle-power mazda lamps for steel mill lighting. *G. H. Stickney, Il Gen Elec R* 18: 377-83 My '15

Incandescent lamps for projectors. *L. C. Porter, Il Gen Elec R* 18:371 6 My '15

Lighting of ships. *L. C. Porter, Il Gen Elec R* 18:113 6 F '15; Same. *Int Marine Eng* 20: 326-8 Ag '15

Mazda C lamps and illumination progress. *Il. H. Magdick, Elec R & W Elec'n* 67: 397-8 S 4 '15

Mazda lamp fixtures for street-lighting service. *Il Elec R & W Elec'n* 65:1191-2 D 19 '14

Melting point of tungsten; abstract. *L. Langmuir, Elec W* 66:64 Ag 28 '15

Modern street lighting with mazda lamps. *Il. A. Tinson, Il Gen Elec R* 18:63-9 Ji '15

New developments in the projection of light. *L. C. Porter, Il Illum Eng Soc* 10:53-64 no 1 '15

New hundred watt gas-filled mazda lamp. *Il Elec R & W Elec'n* 66:313 F 13 '15

Nitrogen filled lamps in Chicago. *Il Elec W* 65:1173-4 My 8 '15

Nitrogen filled tungsten lamp for photographic purposes; abstract. *W. Vooge, Elec W* 66: 1116-17 My 1 '15

Nitrogen-filled tungsten lamps. *Elec W* 66: 708-9 S 25 '15

Operation of mazda C street lamps. *C. H. Shaw, Elec R & W Elec'n* 67:297 Ag 14 '15

Opportunities of illumination with gas-filled lamps. *Il Elec W* 64:1157 D 12 '14

Overheating of 200-watt nitrogen-filled lamp. *E. J. Edwards, Elec W* 65:844 Ap 3 '15

Overheating in tungsten lamps. *A. G. Worthing, J Fr Inst* 180:178-9 O '15

Phenomena of the nitrogen-filled lamp. *disa* *Elec W* 61:1111-12 1 5 '14

Photometry of gas-filled incandescent lamps; with discussion. *C. H. Sharp, Il Illum Eng Soc* 9:1021-32 no 9 '14

Photometry of gas-filled lamps. *D. H. Tuck, disa* *Elec W* 65:78 Ja 9 '15

Photometry of the gas-filled lamp. *C. W. Middlekauff and J. F. Skoglund, Elec W* 64:1244-51 D 25 '14

Present practice in the use of tungsten filament lamps for the lighting of metal working plants; with discussion. *A. L. Powell and R. E. Harrington, Il Illum Eng Soc* 9:814-38 no 8 '14

Saving of \$400,000 effected in New York city by substituting incandescent lamps for arc lamps. *Il Elec W* 66:512-13 S 4 '15

Securing business with the nitrogen lamp. *W. A. Wadsworth, Elec R & W Elec'n* 66: 194-6 Ja 30 '15

Securing increased load with nitrogen lamps at Cincinnati. *Elec W* 65:425 F 15 '15

Series transformer for gas-filled tungsten street lamps. *Il Elec R & W Elec'n* 66:53 Ja 2 '15

Simulating old illuminants. *M. Luckiesh, Elec R & W Elec'n* 67:161-3 Ji 21 '15

Electric lamps, Tungsten—*Continued*
 Temperature and blackening effects in helical tungsten filaments. B: M. Shackelford. J Fr Inst 180:619-21 N '15

See also Automobiles—Lighting

Control

Dimmers for tungsten lamps. A. E. Waller. Il Am Inst E E Pro 34:221-8 F '15; Same cond. Power 41:491 Ap 6 '15; Discussion. Am Inst E E Pro 34:2590-4 O '15
 Lamp-socket energy economizer. Il Elec R & W Elec'n 66:742-3 Ap 17 '15

Testing

Competitive economy test of tungsten-filament lamps. H. H. Higbie. Elec R & W Elec'n 66:1301-7 Jo 26 '15
 Integrating sphere equipped for testing gas-filled lamps. Il diag Elec W 65:120 Ja 9 '15
 Life-testing equipment for tungsten lamps; electrical features of the incandescent lamp-testing laboratory at Nela Park, Cleveland. Il plan Elec W 66:12-16 J1 3 '15

Electric lanterns

Electricity replacing oil in railroad hand lanterns. Il Sci Am 113:472 N 27 '15
 Reducible portable electric lantern. Il Elec R & W Elec'n 65:1220 D 26 '14

Electric light. See Electric lighting

Electric light and power association, Northwest. See Northwest electric light and power association

Electric light association, Indiana. See Indiana electric light association

Electric light association, National. See National electric light association

Electric light carbons

Chemistry of flaming arc carbons. W: C. Moore. Met & Chem Eng 13:52-6 Ja '15; Same. Sci Am 8 79:122-3 F 20 '15; Abstract, with discussion. Elec R & W Elec'n 66:823-4 My 1 '15

Electric light fixtures

Art and science in home lighting; with discussion. G: W. Cassidy. Il Illum Eng Soc 10:55-81 no 1 '15; Abstract. Elec W 65:484-6 F 20 '15
 Edwards lighting fixtures. Il Elec R & W Elec'n 67:862-3 N 6 '15
 Lighting the Equitable building. J: L. Godinez. Il Arch & Bldg 47:188-90 My '15
 New receptacles for semi-indirect and similar fixtures. Il Elec R & W Elec'n 67:384 Ag 28 '15
 Out-door light clusters. Il Elec R & W Elec'n 67:112 J1 17 '15
 Points to remember when selecting fixtures for gas-filled tungsten lamps. Elec W 66:409 Ag 21 '15
 Self-contained unit for indirect and semi-indirect lighting. Il Elec W 66:1218 N 27 '15
 Two new illumination fixtures. Il diag R & W Elec'n 66:887 N 5 '15

See also Street lighting fixtures

Electric light plants, Municipal. See Electric plants, Municipal

Electric lighting

Adjustable chart to show how seasons affect lighting bills. Elec W 66:47 Ag 28 '15
 Artificial lighting of moving picture studios. W: A. D. Myers. Il Illum Eng Soc 8:284-8 Jo '15
 Car electric lighting systems. R. S. McNab. Ry Age (Mech ed) 89:467-8 S '15
 Characteristics of the three-wire generator: analysis of its behavior when used as a balancer in a direct-current lighting system. O. J. Ferguson. diag Elec W 64:1199-1204 D 19 '14
 Combining the aesthetic and the utilitarian in illumination. Il Elec W 66:740-1 O 2 '15
 Converting night into day; what the inventor has done for oil, gas, and electricity in illumination. Il Sci Am 112:536-7 Jo 6 '15
 Detroit's municipal lighting plant. T: Wilson. Il plan Power 40:838-5 D 15 '14
 Developments in illumination during 1914. P. S. Millar. Elec W 65:22-4 Ja 2 '15
 Effect of change of lamp voltages on vision; abstract. W: Kunerth. Elec W 66:541-2 S 4 '15

Effective illumination of streets. P. S. Millar. diag 11 pls Am Inst E E Pro 34:1379-98 J1 '15; Abstract. Elec W 66:62-4 J1 10 '15
 Discussion. Am Inst E E Pro 34:3053-63 D '15
 Elaborate temporary wiring installation; provisions for electric illumination of the outdoor performance of Siegfried given in the Harvard stadium at Cambridge, Mass. Il Elec W 66:474-5 Ag 28 '15

Electric light—a factor in civilization. S. E. Doane. W Soc E J 20:1-14; Discussion. 20: 14-26 Ja '15

Electric lighting data: station equipment—amount of current used for street lighting and other purposes—fuel statistics—number and kind of lamps used for street lighting—ornamental lighting—rates. Munic J 38:884-94 Jo 24 '15

Electric lighting for motion-picture studios. L. G. H. Smith. Elec W 65:1040-2 Ap 24 '15
 Electric lighting of "court" and "clock" golf courses. M. E. Trimble. Il diag Elec W 66:308 Ag 7 '15

Electric lighting of railway passenger cars. R. S. M. Meneah. Rty E 57:696-9 N 27 '15

Electric sunshine in movie production in California. Il Elec W 66:136 J1 17 '15

Electrical equipment of Panama-Pacific exposition. Il diag plan Elec W 64:1241-7 D 26 '14

Electrical features of Boston custom house tower. Il Elec R & W Elec'n 67:336-7 Ag 21 '15

Heating of screw-socket lamp holders; abstract. C. C. Paterson. diag Elec W 65:532 F 27 '15

Illuminating engineering society; review of the Washington convention. J. R. Cravath. Elec W 66:738-9 O 2 '15

Illumination features of Montreal station. Il Elec W 65:334-5 F 6 '15

Illumination of the suburban house; the use of electricity or acetylene. H. L. Alt. Il diag Brickb 24:248-51 O '15

Indiana electric light association 7th annual convention. Elec R & W Elec'n 67:534-6 S 18 '15

Indiana electric light association's seventh annual convention. Elec W 66:626-7 S 18 '15

Individual electric lighting plants for steam shovels. Il Elec R & W Elec'n 66:90-1 Ja 9 '15; Iron Age 94:1396 D 17 '14; Eng & Min J 90:15 Ja 2 '15; Colliery 35:397-8 F '15

Interior wiring for lighting and power service. A. L. Cook. diag Power 41:601-5, 640-3, 666-71 My 4-18 '15

Kansas City Union station lighting. Il Elec W 65:1253-5 My 15 '15

Lighting at San Diego exposition. Il Elec W 65:805-7 Mr 27 '15

Lighting plant for tracklaying, Priescha Tipington Kalkfontein lity. N. K. Prettejohn. Il Rty E 57:155-16 O 23 '15

Lighting the piggery of Lexington. L. C. Porter. Il plan Elec W 66:309-10 J1 24 '15

Master-switch lighting circuits. V. N. Heath. diag Elec W 65:811-13 Mr 27 '15

N. E. L. A. convention, San Francisco, June 8-11. Elec Rty J 45:1106-8 Jo 12 '15

N. E. L. A. Iowa section, 15th annual convention, Keokuk, April 20-22. Elec R & W Elec'n 66:816-20 My 1 '15

N. E. L. A. Michigan section, 4th annual convention. Elec R & W Elec'n 67:27-30 J1 3 '15

N. E. L. A. report on standardizing plugs and receptacles. Elec W 65:256-7 Ja 23 '15; Same. Elec R & W Elec'n 66:245 F 6 '15

N. E. L. A. 38th convention; abstracts of papers and reports. Elec R & W Elec'n 66:1107-13 Jo 12 '15

New step in street illumination. I. Ladoff. plan Elec R & W Elec'n 66:691-5 Ap 10 '15

Ohio electric light association 21st annual convention. Elec R & W Elec'n 67:196-200 J1 31 '15

Review of the electric lighting industry. C. W. Stone. Gen Elec R 18:439-43 Jo '15

Small lighting plants. Il Elec W 65:359 F 6 '15

Year in the electrical industry. Elec R & W Elec'n 66:9-10 Ja 2 '15

See also Electric arc; Electric distribution; Electric lamps; Electric light carbons; Electric light fixtures; Electric meters; Electric signs; Electric wire and wiring; Locomotive headlights; Photometry; Searchlights

Electric lighting - Continued**Cost**

Comparative costs of gas and electricity for illuminating purposes. R. K. Cushman. *Am Gas Light J* 102:167-71 Mr 15 '15
Cost of electric service for a town of 750. J. D. Bowles. *Elec W* 66:254 J1 31 '15
Gas and electric street lights: comparison of cost and efficiency. *El Munic Eng* 49:96-8 S 15
Report of committee on piping large buildings for gas; economical comparison of gas and electric lighting operating factors. *Am Gas Light J* Pro 9:2, 1431-9 '11
Your lighting bill for 1925. A. W. Deininger. *Sci Am* S 80:187 S 18 '15

Rates

Art of rate-making. A. Dow. *Elec W* 65:17-18 Ja 2 '15
Central-station rate making. P. L. Klefer. *Power* 42:268-70 Ag 24 '15
Charging for energy; abstract. Buerglein. *Elec W* 65:869 Ap 3 '15
Cincinnati franchise negotiations. *Elec W* 66:105 J1 19 '15
Comparison of electric light and power rates. J. C. Dickerman. *Power* 42:8-16 J1 6 '15
Decision by Oregon commission, with table of costs for different classes of consumers of the Hood River gas and electric company. *Elec W* 66:431 Ag 21 '15
Houston, Texas, has co-operative lighting franchise. P. H. Sheldon. *Munic Eng* 48:11 3 Ja '15
Municipal electric light plants: rates. *Munic Eng* 48:111-12 P 15
New York Edison company; opinion and order of the first district commission. *Elec R & W* 66:67:802-4 O 30 '15
New York rate reduction accepted. *Elec W* 65:828 Mr 27 '15
Northwest light and water company; decision of commission. *Elec R & W* 66:67:876 7 N 27 '15
Rates and rate making. P. M. Lincoln. *diag Am Inst* 10 R Pro 34:2175-2214 O 15; *Abstract. Elec R & W* 66:722 3 O 16 '15
Rates for light and power; tabulation. *Munic J* 38:893 Je 24 '15
Simple rate system. *Elec R & W* 66:67:978 N 27 '15
Westchester lighting company cases. *Elec R & W* 66:67:985-6 Ja 2 '15

Electric lighting, Arc

See also Electric arc; Electric lamps, Arc; Electric light carbons

Electric lighting, Decorative

Artificial illumination, architecture and decoration. *Elec W* 66:484 Ag 28 '15
Details of Woolworth tower lighting. *El Elec R & W* 66:1048-9 Je 5 '15
Flood lighting of building fronts from ornamental cluster posts. *El Elec R & W* 66:724-5 O 16 '15
Flood lighting versus outline lighting. *El Elec W* 66:389 Ag 14 '15
Illumination at the Panama-Pacific exposition. *El Elec W* 66:1383-5 My 29 '15
Panama-Pacific international exposition at night; how the illuminating engineer uses light decoratively. H. M. Wright. *El Sci Am* 112:378-9 Ap 24 '15
See also San Francisco Panama-Pacific international exposition—Lighting

Electric lighting, Incandescent

Carborundum shunt for series incandescent lamps; abstract. H. Lux. *Elec W* 65:803 Mr 6 '15
New York's greatest lighting spectacle: Woolworth tower. C. W. Ferson. *El Sci Am* 112:171 P 20 '15
Nitrogen-filled lamps in Boston art museums. *El Elec W* 66:481-2 Ag 28 '15
Street lighting practice with incandescent lamps. C. H. Stickney. *El Munic Eng* 48:80-8 P 15
Your lighting bill for 1925. A. W. Deininger. *Sci Am* S 80:187 S 18 '15
See also Electric lamps, Incandescent; Electric lamps, Tungsten

Electric lines

Combined telephone and telegraph circuit for operating water-power system. *diag Elec W* 64:1258 O 26 '14
Concrete transmission-line poles. R. D. Coombs. *El Elec W* 65:311-3 P 6 '15
Equipment for single-circuit transmission-line poles. *El Elec W* 66:714 S 25 '15
Four years' operating experience on a high-tension transmission line. A. Bang. *diag Am Inst* 10 R Pro 31:1125-45 J1 '15; *Abstract. Elec W* 66:10-11 J1 3 '15
High voltage transmission at high altitude. R. H. Thomas. *El diag plan Elec W* 65:20-24, 87-92 Ja 2-9 '15
Hydroelectric development on Bishop Creek. Chas. C. O. Cooke. *El Elec W* 64:1144-7 D 12 '14
Long transmission lines: comparison of the Keokuk-St. Louis and the Big Creek-Los Angeles systems. R. A. Philip. *diag Elec W* 64:1147-8 D 12 '14
N. E. L. A. committee report on underground construction. *diag Elec W* 65:1519-20 Ja 12 '15; *Elec R & W* 66:1112-13 Ja 12 '15
New Chicago Straits high-tension crossing. *El Eng* N 71:218 9 Ag 5 '15
New method of making service connections. *Elec R & W* 66:67:275 Ag 11 '15
Pennsylvania overhead line crossing specifications. *Elec Ry J* 46:186 J1 31 '15
Receiving end impedance of a conducting line loaded at both ends. A. E. Kennedy. *Elec W* 66:182-4 J1 31 '15
Reinforcing metal poles. G. H. McKelway. *Elec Ry J* 46:365 7 Ag 28 '15
Report of the Engineering association committee on power distribution. *Elec Ry J* 46:718-9 O 9 '15
Sag in overhead conductors. K. L. Wilkinson. *Elec W* 65:336-7 P 6 '15
Sag tension calculations. H. Pender. *Elec W* 66:311 5 Ag 11 '15
Special structures for electric lines; how the necessity of transposing circuits, supporting switches and transformers and crossing obstructions is met. R. D. Coombs. *El Elec W* 65:380-1 Ap 17 '15
Steel reinforced aluminum cables. E. T. Driver and E. V. Pannell. *Elec W* 66:521-6 S 4 '15
Steel tower, transmission line construction. A. B. Cuddeback. *El Elec W* 66:127-33 J1 17 '15
Tower foundations for the Christal-Balboa transmission line. L. W. Dye. *El diag Eng Soc W* 19 30:971 20 Ja '15; *Same. Ry R* 56:128-31 My 29 '15; *Same cont. Eng & Contr* 44:317-20 O 24 '15
Transmission-line construction for mountain districts. H. M. Somerville. *El diag Elec W* 66:862-3 O 16 '15
Underground cable on the Pennsylvania railroad. L. C. Forshoe. *El Ry Age* 59:269-71 Ag 13 '15
Underground wires on the Panama railroad. *El Ry Age* 58:451-3 Mr 12 '15
Use of copper clad and iron wire on lines serving small loads. *Elec W* 66:469 Ag 28 '15
Ways of bundling outgoing lines from a generating station. *El Elec W* 66:751 O 2 '15
See also Electric cables; Electric conduits; Electric fuses; Electric railroads; Electric service, Rural; Electric transmission; Electric wire and wiring; Telegraph; Telephone lines

Cost

Cost data on 6800-volt lines. *Elec W* 66:16 J1 3 '15
Cost of constructing a short transmission line. *Elec W* 65:1244 My 15 '15
Cost of 68,000-volt transmission line. *Elec W* 65:904 Ap 10 '15
Cost of transmission lines in New England. *Elec W* 66:135 J1 17 '15
Costs of extensions. *Elec W* 65:1191 My 8 '15

Inductive interference

Discussion on irregular wave shapes. (*See Proceedings for June, 1915*) *Am Inst* 10 R Pro 34:3087-3116 O 15
Report by the Joint committee on inductive interference; discussion. *Am Inst* 10 R Pro 34:313-35 P 15
Telegraph and telephone troubles. *Engineer* 119:234 Mr 5 '15

Electric lines—Continued**Maintenance and repair**

- Climbers for structural-steel poles. *Il diag Elec Ry J* 46:1049 N 20 '15
 Replacing insulators upon live lines. *Il Elec R & W Elec'n* 67:339 Ag 21 '15
 Speedy and inexpensive pole moving in San Francisco. S. L. Foster. *Il Elec Ry J* 46: 874 O 23 '15
 Ways of hunting trouble on distribution systems. *Il diag Elec W* 66:579-82, 638-43 S 11-18 '15

Protection

- Overhead straight line and angle protective crossing clamps. *diag Elec Ry J* 46:598-9 S 18 '15; *Elec W* 66:770 O 2 '15
 Protection of high-voltage lines against birds; abstract. *It. von Bernhard. Elec W* 66:652 S 18 '15
 Protective coatings for line structure and equipment. R. D. Coombs. *Elec W* 65:780 Mr 20 '15

See also Electric protective apparatus**Electric locomotives**

- Battery locomotive for track laying. *Il Engineer* 119:585-6 Jo 11 '15
 Chicago, Milwaukee & St. Paul locomotives. A. H. Armstrong. *Il diag Gen Elec R* 18: 600-3 J1 '15; Same. *Elec Ry J* 45:1072-4 Jo 5 '15; Same. *Engineer* 120:153 Ag 13 '15
 Crank drive in electric locomotives. J. Lynch. *Engineer* 120:287-9 S 24 '15
 Delivery of electric locomotives for the Chicago, Milwaukee & St. Paul. *Il diag Ry It* 57:451-2 O 9 '15
 Double truck electric locomotive. *Il Eng & Contr* 43:185-6 F 24 '15
 Electric locomotive; comparisons with steam locomotive as to selection and rating. A. H. Armstrong. *Il diag Am Soc M* 10 J 37:381-8 J1 '15; Same abr. *Gen Elec R* 18:828-31 Ag '15; Same abr. *Sci Am S* 80:342-3 N 27 '15
 Electric locomotive design. W. Arthur. *Elec Ry J* 45:1209 Jo 26 '15
 Electric towing at Panama. *Il diag Elec Ry J* 45:235-7 Jo 30 '15
 Electric traction on the Norfolk & Western railway. *Il diag plans Eng N* 73:1192-5 Jo 17 '15
 Electricity in the construction and operation of the Panama canal. B. Schildmayer. *Il diag Gen Elec R* 18:sup729-47 J1 '15
 Exhibition of St. Paul locomotives. *Il Elec Ry J* 46:1030-7 N 20 '15
 First 3000-volt locomotive for the Chicago, Milwaukee & St. Paul railway company. B. S. Johnson. *Il Gen Elec R* 18:1154-8 J1 '15
 Gas-electric locomotives for the Pan Am electric lines. *Il diag Ry It* 57:423-6 O 2 '15; *Elec Ry J* 46:608-70 O 2 '15; *Elec R & W Elec'n* 67:860-1 N 6 '15; *Ry Age* 59:658-60 O 8 '15; *Eng N* 74:782 O 21 '15
 Gasoline-electric locomotives. *Il Power* 42:600 N 9 '15
 Locomotive and train cars in Detroit United freight service. C. L. Keller. *Il Elec Ry J* 45:848-9 My 1 '15
 Mechanical features and performance of electric locomotives. A. H. Armstrong and A. F. Balcholder. *Ry Age* 59:247 Ag 8 '15
 Mechanical problem of the electric locomotive. G. M. Eaton. *Ry Age* 59:604-5 O 1 '15; Abstract. *Elec Ry J* 46:626 S 25 '15
 Mercury vapor rectifier locomotive an accomplished fact. *Il diag Elec Ry J* 44:1343 J 19 '14; Same. *Engineer* 119:142-3 F 5 '15
 Modern electric mine locomotive. G. Wright. *Il Am Inst M* 10 Pro 34:1615-20 Ag '15; Same. *Colliery* 35:145-8 O '15
 Norfolk & Western electrification, plans (supp) *Elec Ry J* 45:1080-3 Jo 5 '15
 Pennsylvania locomotive on turntable at Panama-Pacific exposition. *Il Elec Ry J* 45:387 F 20 '15
 Storage-battery locomotives. *Colliery* 35:250-60 D '14
 Storage-battery locomotives. *Eng & Min J* 90: 533 Mr 20 '15
 Three-phase Italian passenger locomotives. G. Pontecorvo. *Il diag Elec Ry J* 45:283-5 F 6 '15

- Three thousand-volt direct-current electric locomotives for the Chicago, Milwaukee & St. Paul railway. *Sci Am* 118:391-4 N 6 '15
 Towing locomotives for the Panama canal. C. W. Larson. *Il diag Gen Elec R* 18:101-17 F '15; Same cond. *Eng N* 73:145-7 Jo 28 '15; *Ry Age* 58:189-91 Jo 29 '15; *Elec R & W Elec'n* 66:187-91, 233-7 Jo 30-F 6 '15; *Elec W* 65:288-90 Jo 30 '15; *Eng Rec* 71:134-6 Jo 30 '15; *Ry R* 56:150-3 Jo 30 '15; *Sci Am S* 79:72-4 Jo 30 '15; *Eng M* 48:744-8 F '15; *Int Marine Eng* 20:161-2 Ap '15; *Engineer* 118: 323-5 Ap 2 '15

- Underground haulage by storage-battery locomotives in the Bunker Hill & Sullivan mine. J. W. Gwinn. *Il Am Inst Min* 13 Bul 98:230-47 F '15; Discussion. 101:1189-97 My '15

See also Railroads—Electrification**Performance**

- Data on four years' performance, electric locomotives of the Pennsylvania R. R. *Il Ry It* 57: 53-4 J1 10 '15; Same cond. *Ry Age* 59:513 S 17 '15
 Performance of Pennsylvania railroad's electric locomotives at New York terminal. *Elec R & W Elec'n* 66:1314 Jo 26 '15

Repair

- Electric locomotive repair shops. New York, New Haven & Hartford R. R., Van Nest, New York. *diag plans Ry R* 57:363-5 S 18 '15

Electric machinery

- Air cleaning apparatus for the ventilation of generators and transformers. W. Baum. *Il diag Gen Elec R* 18:801-12 Ag '15
 Automatic electrical tools. *Il Mach* 22:245-6 N '15
 British standardization rules. *Elec W* 65:1245 My 15 '15
 Changing the service of direct-current machines. G. Fox. *Power* 41:298-9 Mr 2 '15
 Classification of electromagnetic machinery. F. Greedy. *diag Am Inst M* 10 Pro 34:1399-1423 J1 '15
 Cost per pound of electrical machinery. L. A. Duggell. *Elec W* 66:746-8 O 2 '15
 Machine which heats and drives rivets. *Il Iron Age* 95:937-8 Ap 29 '15
 Maintaining high insulation resistance. H. M. Melancon. *diag Power* 41:366 Mr 16 '15
 Physical limitations in d-c. commutating machinery. H. G. Lammie. *Am Inst M* 10 Pro 34:1550-1614 Ag '15
 Practical experience in the operation of electrical machinery. H. C. Parham. *diag Gen Elec R* 17:909-12, 961-3, 1193-6, 18:56-9, 146-7, 217-18, 304-7, 401-4, 606-8, 861-2, 928-9, 1003-6, 1082-3, 1146-8 S(-), D 14-My, J1-D '15
 Reluctance of some irregular magnetic fields. J. E. H. Douglas. *diag Am Inst M* 10 Pro 34:867-925 My '15; Discussion. 34:3078-86 D '15
 Shape of the pressure wave in electrical machinery. S. P. Smith and H. H. Boulding. *diag Inst M* 10 J 53:205-38; Discussion. 53: 238-47, 323-5 F 1-15 '15
 Special electric butt-welding machines. D. T. Hamilton. *Il diag Mach* 21:735-9 My '15
 Troubles encountered in the operation of carbon brushes in direct-current generators and motors. H. H. Martindale. *Il Am Inst M* 10 Pro 34:373-84 Mr '15; Same cond. *Power* 41:558-9 Ap 20 '15; Same cond. *Engineer* 119:488-9 My 7 '15; Same cond. (Cause of poor commutation and remedial) *Elec W* 65:863-4 Ap 3 '15; Discussion. *Am Inst M* 10 Pro 34:2968-74 D '15
 Year in the electrical industry. *Elec R & W Elec'n* 66:10-12 Jo 2 '15

- See also Brushes** (electric machinery); Commutators; Dynamoes; Electric apparatus and appliances; Electric controllers; Electric driving; Electric engineering; Electric machines; Electric motors; Electric plants; Electric protective apparatus; Electric shovels; Electric transformers; Electricity in mining; Electricity on the farm; Rotary converters; Ship propulsion, Electric

Losses**See also Eddy-currents**

Electric machinery *Continued*

Manufacture

Castings as electrical apparatus parts. A. B. Reynolds, from Age 94:136-7 D 31 '14; Abstract (holding an electrical manufacturer's business). Foundry 43:96-7 Mr '15

Electricity in the manufacture of electrical machinery. II Elec R & W Elec'n 66:287-9 F 13 '15

Testing

Separation of the no-load stray losses in a continuous-current machine by stroboscopic running-down methods. D; Robertson. bibliog diags Inst E E J 53:308-22 F 15 '15

Electric machines

Quickly constructed static machine. II Sci Am 113:164 Ag 21 '15

Electric measurement

Adjustments of the Thomson bridge in the measurement of very low resistances. F. Wenner and E. Weibel. U S Bur Stand Bul 11:65-8 N 15 '14

Calculation of strength of electric currents when measured by Rayleigh current balance. Elec R & W Elec'n 67:104 S 1 '15

Calculation of the maximum force between two parallel, coaxial, circular currents. F. W. Grover. J Fr Inst 179:711-16 Je '15

Calibration of current transformers by means of mutual inductance. C. Porteau. diags pls Am Inst E E Pro 34:1199-1216 Je '15

Cathode ray tube and its application. M. E. Tressler. diag Gen Elec R 18:816-29 Ag '15

Comparison of calculated and measured core loss curves. F. W. Peek, Jr. Am Inst E E Pro 34:169-76 F '15; Discussion. 34:2629-1 N '15

Determining the load in branch distribution circuits of direct-current systems; abstract. L. Lewin. Elec W 65:166-6 Ja 16 '15

Differential method for the determination of losses in coils. A. Hund. diags Elec W 65:1300-1 My 22 '15

Direct-reading instrument for measuring the logarithmic decrement and wave length of electromagnetic waves. F. A. Kolster. diags U S Bur Stand Bul 11:321-56 My 19 '15

Edward Weston's inventions. L. H. Backeland, per Sci Am 8 79:109 F 13 '15

Electrical constants of antennas. L. Cohen. diag Elec W 65:286-8 Ja 30 '15

Investigation of dielectric losses with the cathode ray tube. J. P. Minton. II Am Inst E E Pro 31:1115-65 Je '15

Leakage prevention by shielding, especially in potentiometer systems. W. P. White. diags Am Chem Soc J 36:2011-20 O '14

Measuring one-millionth of an ohm; abstract. E. H. Rayner. Elec W 66:763 O 2 '15

Measuring the current in d. c. circuits. O. A. Knapp. II diags Elec W 66:761-2 O 2 '15

Methods, data, and new apparatus for measuring electrical conductivity above 1600° C. of vapors at normal pressure. E. F. Northrup. II J Fr Inst 179:337-52 Mr '15

Methods of measuring the inductances of low-resistance standards. F. Wenner, E. Weibel and F. H. Silsbee. diags U S Bur Stand Bul 12:11-21 O 23 '15

Phase angle of current transformers. C. L. Dawes. Am Inst E E Pro 34:927-40 My '15

Separation of the no-load stray losses in a continuous-current machine by stroboscopic running-down methods. D; Robertson. bibliog diags Inst E E J 53:308-22 F 15 '15

Sphere gap as a means of measuring high voltage. F. W. Peek, Jr. Am Inst E E Pro 33:899-914 F '14; Discussion. 34:103-24 Ja '15

Sphere gap discharge voltages at high frequencies. J. C. Clark and H. J. Ryan. II Am Inst E E Pro 33:937-41 Je '14; Discussion. 34:103-24 Ja '15

Ten-to-one ratio for comparing precision resistance standards. C. A. Hoxie. II Gen Elec R 18:916-19 S '15

Transmission line calculator. R. W. Adams. diags Gen Elec R 18:88-80 Ja '15

See also Electric meters; Electric resistance; Electric testing; Electric units; Electromotor; Galvanometers; Magnetic measurements; Voltmeters

Electric meters

Alternating-current and direct-current instruments. II Elec W 66:771-3 O 2 '15

Electric vacuum meter; abstract. W. Rohn. II diag Elec W 64:1211 D 19 '14

Electrical measuring instruments. U S Bur Stand Circ 20:1-67 '15

Instrument transformers arranged to serve separate-circuit and totalizing meters. plan Elec W 66:1092 N 13 '15

Measurements for the household. II U S Bur Stand Circ 65:82-90 '15

Meter box to permit reading meter from outside of house. II Elec R & W Elec'n 65:1148-9 D 12 '14

Meter practice on rural electric-service lines. II Elec W 61:1110 D 5 '14

N. E. L. A. committee report on meters. diag Elec W 65:1630 Je 12 '15

Notes on induction meter design. W. H. Pratt. II Gen Elec R 18:277-81 Ap '15

Power factor indicator. J. A. Randolph. diags Power 40:836-8 D 15 '14

Prepayment meters in Amsterdam; abstract. W. Laleff. Elec W 66:1157 N 20 '15

Rates and rate making. P. M. Lincoln. diags Am Inst E E Pro 31:2175-2214 O '15; Abstract. Elec R & W Elec'n 67:722-3 O 16 '15; Elec W 66:819 O 16 '15

Reactive factor meters. II Elec R & W Elec'n 65:1152-3 D 12 '14; Same. Elec Ry J 44:1336 D 19 '14

Standard specification for electricity meters. Engineer 129:270-80 S 17 '15

Variable resistance to motion offered by the registering trains of electric supply meters. S. Evershed. diags Inst E E J 53:498-511 Ap 1 '15; Abstract. Elec W 65:1118-19 My 1 '15

Weston portable electrodynamicmeter-type ammeters, voltmeters and wattmeters. II Elec R & W Elec'n 67:778 O 23 '15; Met & Chem Eng 13:119 N 1 '15

See also Ammeters; Ampere-hour meters; Electric measurement; Electric testing; Electrometer; Manometers; Ohmmeters; Voltmeters; Voltmeters; Watt-hour meters; Wattmeters

Reading

Camera for reading customers' meters. II Elec W 66:373 Ag 14 '15

Testing

Obtaining constant potential for meter testing. II diag Elec W 66:693 S 25 '15

Electric mining. *See* Electricity in mining

Electric motors

Adjustable speed single phase motor. II Elec W 6:619-20 Mr 6 '15

Advance type single phase induction motors. II Elec R & W Elec'n 67:639-40 S 18 '15

Advantages of standard motor speeds. H. N. Gilbert. Elec R & W Elec'n 67:686 S 25 '15

Alternating and direct-current motors. A. A. Fredericks. Power 41:891-2 Je 29 '15

Alternating current commutator motors; abstract. M. Latour. diags Elec W 66:698 S 11 '15

Characteristics of direct-current motors. H. N. Gilbert. Elec R & W Elec'n 67:326-7 Ag 21 '15

Characteristics of electric motors involved in their application. D. H. Rushmore. Am Inst E E Pro 34:187-93 F '15; Abstract and discussion. Elec W 65:623 F 27 '15; Discussion. Am Inst E E Pro 34:2747-803 N '15

Classification of alternating-current motors. V. A. Fynn. diags Am Inst E E Pro 34:969-1000 My '15

Classification of electromagnetic machinery. E. C. Brady. diags Am Inst E E Pro 34:1389-1423 J1 '15

Core loss in series motor. T. M. Hobie. diags Power 41:771-2 Je 8 '15

Designing small dynamos and motors. C. F. Krauss, Jr. diags Sci Am 8 80:364-6 D 4 '15

Diehl polyphase squirrel-cage motors. II Elec R & W Elec'n 67:491 S 11 '15

Direct-current commutating-pole motors. II Elec W 65:1357-8 My 15 '15

Direct-current motors for coal and ore bridges. R. H. McLean. II Am Inst E E Pro 33:1009-20 Je '14; Discussion. 33:1867-8 D '14

Disconnecting induction motors; abstract. R. Rusdenberg. Elec W 65:1425 My 20 '15

Electric motors—Continued

- Discussion on factors involved in motor application. *Am Inst E E Pro* 34:266-746 N '15
- Discussion on fields of motor application. *Am Inst E E Pro* 34:300-52 D '15
- Dumore sewing-machine motor. *Il Elec R & W Elec'n* 67:833 O 2 '15
- Effect of slot design on iron loss. *E. B. Millar. Elec W* 66:985-6 O 30 '15
- Electric drive for Wilcox & Gibbs sewing machine. *Il Elec R & W Elec'n* 67:992 N 27 '15; *Elec W* 66:1220 N 27 '15
- Fractional horse power motor application. *H. F. Boc. Am Inst E E Pro* 34:3013-18 D '15
- Fractional horse power motor load. *B. Lester. Il Am Inst E E Pro* 34:385-96 Mr '15; Same cond. *Eng M* 49:268-71 My '15; Abstract. *Power* 41:589-90 Ap 27 '15; Discussion. *G. H. Garcelon. Am Inst E E Pro* 34:2653-5 N '15
- Guarantees on motor and generator overloads. *H. M. Phillips. Power* 42:240-1 Ag 17 '15
- Hamilton-Beach sewing-machine motor. *Il Elec R & W Elec'n* 67:773 O 23 '15
- How to determine type of motor. *F. A. Annett. Diags Power* 39:696-8 My 19 '14; Same. *Sci Am S* 78:374-5 D 12 '14
- Induction motor drive for glass-blowing machines. *Il Elec W* 65:171-2 Ja 16 '15
- Induction motors and rules for wiring and fusing. *Il Elec R & W Elec'n* 66:257-8 F 6 '15
- Industrial alternating-current motor applications in the metallurgical and chemical industries. *Il B. Barnes. Met & Chem Eng* 13:297-303 My '15
- Installation of motors. *M. F. Arloe. Diags Elec R & W Elec'n* 67:558-63 S 26 '15
- Kimble adjustable-speed single-phase motor. *Il Elec R & W Elec'n* 66:450-1 Mr 6 '15; *Mach* 21:592-4 Mr '15
- Lamp slip indicator. *F. Bodell. Elec R & W Elec'n* 65:1224 D 26 '14
- Line disturbance caused by special squirrel-cage and wound-rotor motors when starting elevators and hoists. *J. C. Lincoln. diag Am Inst E E Pro* 34:321-31 Mr '15; Abstract. *Elec W* 65:822-3 Mr 27 '15; Discussion. *Am Inst E E Pro* 34:2847-60 N '15
- Methods of mounting motors at ceilings. *R. G. Bradshaw. Diags Elec R & W Elec'n* 66:73-5 Ja 9 '15
- Mine motors, with special reference to electric motors. *J. Drennen. Colliery* 35:241-5 D '14
- Minneapolis a. c. motor. *Il Dom Eng* 72:351 S 18 '15
- Modern mine haulage motor. *C. W. Larson. Il Gen Elec R* 18:204-8 Ap '15
- Motors operated under modified conditions. *G. Fox. Diags Power* 42:472-6 O 5 '15
- N. 32. 1. A. Rules to harmonize service requirements for motors. *Elec W* 66:93 J 10 '15
- Neutral on interpole machines. *W. T. Keenan. Power* 42:412-13 S 21 '15
- Old experiences with electrical machinery. *O. M. Ward. Power* 42:191 Ag 10 '15
- Permissible explosion-proof electric motors for mines; conditions and requirements for test and approval. *Il, H. Clark. Il U S Bur Mines Tech Pa* 101:1-14 '15
- Personal recollections. *N. Tesla. Il Sci Am* 112: 537-4 Ja 5 '15
- Polyphase commutator machines and their application. *N. Shuttleworth. Inst E E Pro* 34:53: 439-57; Discussion. 53:457-66 Mr 15 '15
- Polyphase induction motors with special ventilation features. *Il Elec W* 66:547-8 S 4 '15
- Protecting polyphase motors against phase failure and reversal. *Il Met & Chem Eng* 13: 703-4 O 1 '15
- Repulsion start induction motor. *J. L. Hamilton. Diags Am Inst E E Pro* 34:2389-420 O '15
- Rewinding direct-current motors and generators. *A. A. Fredericks. Diags Power* 42:76-8, 116-18, 148-50 J 1 20-Ag 3 '15
- Rewinding motor for lower frequency. *Elec R & W Elec'n* 67:505-6 M 25 '15
- Scheme for securing 50 r.p.m. from a 220-volt, 250-r.p.m. direct-current motor. *V. A. Clarke. plan Elec W* 66:1090-1 N 13 '15
- Selection and application of motors. *G. Fox. Elec R & W Elec'n* 66:348-50 F 20 '15
- Selection of electric motors and controllers. *S. H. Libby. Foundry* 43:60-3 F '15
- Small-sized dental motor for direct drive. *Il Elec W* 65:563 F 27 '15; *Elec R & W Elec'n* 66:661 Ap 3 '15
- Speed characteristics of direct-current motors. *A. M. Bennett. Power* 41:125-7 Ja 26 '15
- Standardization of crane motors. *Ry Age (Mech ed)* 89:585 N '15
- Starting and operating characteristics of single-phase motors. *Elec W* 65:433-4 F 13 '15
- Starting motors. *P. M. Heidt. Diags Horseless Age* 35:882-3; 36:20-1 Je 30-J 1 7 '15
- Stationary motors in census report. *Elec W* 65:399-400 F 13 '15
- Subdivision of power as solved by the small motor. *R. E. Barker and H. R. Johnson. Gen Elec R* 18:555-8 Je '15
- Synchronous motors for power-factor correction. *T. Schou. Elec W* 66:1138-42 N 20 '15
- Torque characteristics of direct-current motors. *A. M. Bennett. diag Power* 42:748-52 N 30 '15
- Two synchronous-motor protection schemes. *R. B. George. Diags Elec W* 66:142-3 J 17 '15
- Types of fractional-horse-power motors to employ in different services; abstract. *Bernard. Elec W* 65:938 Ap 10 '15
- Variable speed alternating-current motor of the Kimble electric company, Chicago. *Il Iron Age* 95:510 Mr 4 '15
- Westinghouse factory sewing-machine motor. *Il Elec R & W Elec'n* 67:856 N 6 '15; *Elec W* 66:1048 N 6 '15
- Where electric motors can be used. *T. R. Hay. Il Eng M* 49:498-516 J 1 '15
- Why direct-current motors fail to start. *F. A. Annett. Diags Power* 41:194-5, 230-2 F 6-16 '15
- See also* Armatures; Commutators; Dynamos; Electric controllers; Electric driving; Electric locomotives; Electric machinery; Electric power; Electric transformers

Bearings

- Ball-bearing induction motors. *Il Power* 42:722 N 23 '15
- Ball bearings in electric motors. *Il diag Elec W* 66:658-9 S 18 '15
- Ball bearings in electric motors. *F. J. Poor. Il Diags Gen Elec R* 18:631-5 J 1 '15

Control

- Action of phase advance in regulating power factor of an induction motor. *diag Elec W* 66:191 J 1 24 '15
- Alternating-current controllers for steel mills. *A. Simon. Il Diags Am Inst E E Pro* 34:731-51 My '15; Same. *Iron Tr R* 57:477-81-1, 527-0 S 9-16 '15; Abstract. *Elec W* 65:1195-6 My 8 '15; Discussion. *Am Inst E E Pro* 34: 2896-914 N '15
- Automatic control of motors in a sewage pumping station. *L. R. Vautrot. Il diag Sib- ley J* 29:79-87 D '14
- Changing speed of three-phase induction motor. *W. L. Bankhead. Diags Power* 41:583-4 Ap 27 '15
- Control for electric motors. *C. D. Knight. Gen Elec R* 18:303 Ag '15
- Direct-current motor-speed regulation by resistance in the armature circuit and the use of diverters; abstract. *T. Carter. diag Elec W* 66:934-5 O 23 '15
- Dynamic braking. *Elec R & W Elec'n* 66:300-1 F 13 '15
- Float-switch control from two points for motor-driven pump. *G. A. Schneider. Diags Elec R & W Elec'n* 67:606 O 2 '15
- How one operator controlled an air-compressor motor and used it to drive a direct-current generator. *Il. R. Smith. Diags Elec W* 66:168 Ag 28 '15
- Method for controlling 2000-volt induction motor one mile from power house. *A. C. Lasher. diag Elec W* 66:91-2 J 1 10 '15
- Mill controllers. *Il. F. Stratton. Am Inst E E Pro* 34:599-614 Ap '15; Same. *Iron Tr R* 56: 820-4 Ap 23 '15; Discussion. *Am Inst E E Pro* 34:2869-94 N '15
- Motor-speed control. *Power* 42:55-6 J 1 13 '15
- Press button control for an electric traverser. *Il Engineer* 119:436 Ap 30 '15
- Principles and systems of electric motor control. *C. D. Knight. Il Diags Am Inst E E Pro* 34:2915-26 D '15

Electric motors—Control *Continued*

Speed regulation of induction motors; abstract, F. W. Meyers, *diag* *Elec W* 66:763-4 () 2 '15

Variable-speed drives for rolling mills, K. A. Pauly, *Power* 42:527-8 () 12 '15; Abstract (Two control systems for steel-mill motor drives), *diag* *Elec W* 66:866-6 () 16 '15

Noises

Electric-motor noises, F. H. Dayles, *diag* *Power* 41:572-3 Ap 27 '15

Nomenclature

What to call alternating-current motors, C. A. Adams, *Elec W* 66:339 Ag 14 '15

What to call alternating-current motors; discussion, V. A. Fynn; E. Rosenberg, *diag* *Elec W* 66:371-5 () 30 '15

Repair

Keep record of electrical repairs, C. E. Stoltz, *Iron Tr R* 56:267-9 | *My* 13 '15; Same cont. (Steel mill electric motors), *Iron Age* 95:952-3 Ap 20 '15

Starting

Data on starting torque and starting currents of various motors, *Elec W* 66:1033 N 6 '15

Wrong field connections, E. C. Parham, *diag* *Power* 42:692-3 N 16 '15

Starting devices

Automatic starting switches for small alternating-current motors, *il* *Elec R & W* *Elec'n* 66:1007 *My* 20 '15

Case where an instruction tag received with apparatus was needed, E. C. Parham, *diag* *Elec W* 66:691 8 25 '15

Cutler-Hammer automatic starters for alternating-current motors, *il* *Elec R & W* *Elec'n* 67:486 () 9 '15; *Elec W* 66:826 () 9 '15

Improved motor starter, J. G. Grant, *il* *Econ & Min J* 100:842 N 20 '15

Induction-motor starters, *il* *diag* *Elec W* 66:371-5 Ag 14 '15

Operating factory motors, S. P. Goodale, *il* *diag* *Elec W* 66:533-4 8 4 '15

Starters for induction motors, *il* *Elec W* 65:1203-4 *My* 8 '15

Starting small motors, A. A. Fredericks, *Power* 41:345 *Mr* 9 '15

Starting resistance

Calculations of starting resistances for railway motors, F. Castiglioni, *diag* *Elec Ry J* 44:1382-5 () 26 '14; Discussion, 45:186, 238-9, 381 *Jan* 23-30, *il* 20 '15

Effects of incorrect starting resistances, J. W. Corning, *Elec Ry J* 45:261-4 *Jan* 9 '15

Graphic geometrical progression method for starting-resistance calculation, W. F. Coors, *il* *Elec Ry J* 45:761-3 *Ap* 17 '15

Short method for calculating the starting resistance for shunt, induction, and series motors, B. W. Jones, *Gen* *Elec R* 18:131-4 *Fe* '15

Time element in controller notching, A. M. Buck, *Elec Ry J* 45:672 *Ap* 3 '15

Temperature

Distribution and rise of temperature in field coils; with discussion, M. Maclean, I. J. MacKellar, and R. H. Lock, *diag* *Inst E* 16 *J* 53:526-33 *Ap* 1 '15

Temperature of field windings, H. M. Phillips, *Elec R & W* *Elec'n* 67:804-5 N 13 '15

Testing

Calculation of the performance of an induction motor, W. V. Lyon, *Elec W* 66:1188-70, 1240-2 *My* 8-15 '15

Methods of testing for short-circuits in field coils, F. J. Foote, *diag* *Elec Ry J* 45:64-5 *Jan* 2 '15

Single-phase squirrel-cage motor with large starting torque and phase compensation, V. A. Fynn, *il* *diag* *Am Inst E* *Pro* 34: 2215-40 () '15

Test of a direct-current motor, H. C. Lightfoot, *diag* *Elec R & W* *Elec'n* 67:210-6 *Ag* 7 '15

Ventilation

Modern electric mine locomotive, G. Bright, *il* *Am Inst E* *Pro* 34:1615-20 *Ag* '15; Same, *Colliery* 36:145-6 () '15

* See also Electric motors, Railway—Ventilation

Electric motors, Railway

Armature removal, R. R. Potter, *il* *Elec Ry J* 46:367-8 *Ag* 28 '15

Baffle plate for motor axle bearing caps of C18-73 motors, R. Fox, *il* *Elec Ry J* 45:424 *Fe* 27 '15

Box-frame motor practice, *Elec Ry J* 46:410-11 8 4 '15

Box-frame motors and the removal of armatures, H. C. Prather, *Elec Ry J* 46:915 () 30 '15

Brush-holder practice for single-phase motors, R. R. Potter, *il* *diag* *Elec Ry J* 46:408-9 8 4 '15

Calculations of starting resistances for railway motors, F. Castiglioni, *diag* *Elec Ry J* 44:1382-5 () 26 '14; Discussion, 45:186, 238-9, 381 *Jan* 23-30, *il* 20 '15

Chart for use in transforming motor speed curves for different voltages, F. Castiglioni, *Elec Ry J* 45:245 *Mr* 13 '15

Developments in the heat treatment of railway gearing; with discussion, W. H. Phillips, *il* *Econ Soc W* *1st* 39:137-77 N '14; Abstract, *Am Soc M E J* 37:227-8 *Ap* '15

Effect of car wheel diameter on motor heating, *Elec Ry J* 46:70 *Jan* 10 '15

Effect of car wheel diameter on motor heating, A. L. Brownell, *Elec Ry J* 46:152-3 8 11 '15

Effect of gear ratio on operating economy, *Elec Ry J* 46:68 70 *Jan* 10 '15

Effects of incorrect starting resistances, J. W. Corning, *Elec Ry J* 45:261-4 *Jan* 9 '15

Effects of short circuited field coils ground and puncture tests, F. J. Foote, *diag* *Elec Ry J* 44:1396 *Jan* 10 26 '14

Effects of variation in car wheel diameters on motors, A. S. Langsdorf, *Elec Ry J* 44:1344 *Jan* 10 '14

Experiences with field control, H. M. Lloyd, *Elec Ry J* 46:191 *Jan* 31 '15

First 6000 volt d. c. railway, J. G. Pertsch, *Safety* *J* 30:72 N '15

6000-volt direct current railway, *diag* *map* *Engineer* 120:140 *1 N* 5 '15

6000-volt experimental line of the Michigan United Traction company, C. Renshaw, *il* *diag* *map* *Ry R* 57:533-6 () 23 '15

Machin of railway motors; abstract, R. B. Hellmund, *Elec W* 66:188 *Jan* 24 '15

C18-73 d. c. motor and T-2 control, *il* *Elec Ry J* 45:1121-5 *Jan* 12 '15

Gears and pinions, R. H. Ingledale, *diag* *Elec Ry J* 45:947 *My* 15 '15

Good results from old motors in Atlantic City, G. E. Fisher, *il* *Elec Ry J* 46:677 () 2 '15

Graphic geometrical progression method for starting-resistance calculation, W. F. Coors, *il* *Elec Ry J* 45:761-3 *Ap* 17 '15

Handy formulae for assembling brush-holder sockets for C18-73 motors, J. N. Graham, *diag* *Elec Ry J* 44:1351 *Jan* 19 '14

High-tension d. c. tap field motors for the Central Argentine railway, *il* *Elec Ry J* 45:679-80 *Ap* 3 '15

Hints on the improvement of railway motor coils, *il* *Elec Ry J* 45:420 *Fe* 27 '15

Home-made pinion puller, C. M. Peist, *il* *Elec Ry J* 46:644 *8 25* '15

How Bronx City reduces motor troubles, C. M. Peist, *Elec Ry J* 46:698 N 13 '15

Insulation for railway motors, R. B. Hellmund, *Elec Ry J* 45:208 *Mr* 13 '15

Light-weight direct railway motor, *Ry R* 67: 690-1 () 16 '15

Mating gears and pinions, W. H. McAloney, *Elec Ry J* 45:200 *My* 23 '15

Maximum motor input, *Elec Ry J* 44:1347 *Jan* 19 '14

Methods of removing the armature from box frame railway motors, J. L. Booth, *il* *Gen* *Elec R* 18:208-15 N '15

More notes on regenerative braking, *Elec Ry J* 45:1161 *Jan* 12 '15

New method to determine railway motor speeds with varying voltage, A. M. Buck, *Elec Ry J* 46:695-6 8 18 '15

Electric motors, Railway—Continued

- New motor for one-man cars. *Il diag Elec Ry J 46:412 S 4 '15*
- New York municipal car—motors, control, conduit and collectors. *Il diag Elec Ry J 46:496-503 Mr 13 '15*
- Nominal rating of railway motors. G. H. Hill. *Elec Ry J 46:275-6 Ag 14 '15*
- Operating conditions of railway motor gears and pinions. A. A. Ross. *Il Gen Elec R 18:249-58 Ap '15*
- Operating with 5000-volt direct current. N. W. Storer. *Il diag map Elec Ry J 46:660-3 O 3 '15*
- Points on the installation and removal of pinions. R. H. Parsons. *diag Elec Ry J 46:638-9, 674-5 Mr 27-Apr 3 '15*
- Power consumption of railway motors. H. L. Andrews and J. C. Thirwall. *Il Gen Elec R 18:944-51 O '15*
- Pressed-steel motors on a Cleveland car. *Il Elec Ry J 45:1041 My 29 '15*
- Railway motor characteristic curves. E. E. Kimball. *Il Gen Elec R 18:290-9 Ap '15*
- Railway motor commutation and flushing. R. E. Hellmund. *Elec Ry J 46:105-6 JI 17 '15*
- Railway motor gearing. W. L. Allen. *Elec Ry J 46:1201-3; 46:1211-12 Je 26, JI 17 '15*
- Regenerative braking. F. J. Sprague. *Elec Ry J 46:1076-7 Je 5 '15*
- Rejuvenating overloaded motors. W. P. Jackson. *Il Elec Ry J 46:192-3 JI 31 '15*
- Removing pinions from motor axles. A. A. Ross. *Elec Ry J 46:800 Ap 24 '15*
- Selection of city motor equipment. G. W. Remington. *Elec Ry J 46:875-6 Ap 3 '15*
- Sprague-General electric P.C. control. C. J. Axtell. *Il plan Gen Elec R 18:985-90 O '15*
- Time element in controller notching. A. M. Buck. *Elec Ry J 46:672 Ap 3 '15*
- Types of motor axle bearings—use of different types for each half. *Elec Ry J 46:760 Ap 17 '15*
- Use of the gas flame in removing pinions. R. H. Parsons. *Elec Ry J 46:988 My 22 '15*
- Woo light-weight street-railway motor. *Il Elec R & W Elec'n 67:990 N 27 '15*
- Wheel diameter and motor heating. F. J. Foote. *Elec Ry J 46:914 O 30 '15*
- Where a single winder maintains 961 motors. J. Sutherland. *Il Elec Ry J 46:997-8 N 13 '15*

Ventilation

- Advantages and limitations of railway motor ventilation. R. E. Hellmund. *Il Elec Ry J 46:833-5, 937 My 1 '15 '15*
- Motor ventilation. *Elec Ry J 46:827 My 1 '15*
- Motor ventilation. H. H. Adams. *Elec Ry J 46:990 My 22 '15*
- Motor ventilation. P. J. Kealy. *Elec Ry J 46:109 JI 17 '15*
- Self-ventilated railway motors. H. D. Priest. *Elec Ry J 46:891-2 My 8 '15*
- Simple ventilating scheme for increasing motor output. R. H. Parsons. *diag Elec Ry J 46:1170 Je 19 '15*

Electric notation. See **Electric symbols**

Electric omnibuses. See **Electric buses**

Electric ovens

- Automatically controlled electric oven for testing shrinkage. *Il Elec R & W Elec'n 67:488 S 11 '15*
- Economic operation of electric ovens. P. W. Gumaer. *Il Am Inst 10 10 Pro 34:1001-32 My '15; Abstract. Elec W 66:68-7 JI 10 '15*
- Electric oven gives remarkable results in Toronto bakery. *Elec R & W Elec'n 66:480 Mr 13 '15*
- Electrically heated enameling ovens. C. W. Bartlett. *Il Gen Elec R 18:1130-5 J '15*
- Electrically heated japanning ovens. C. F. Hirschfeld and W. D. Dygert. *Il Elec W 66:930-2 O 33 '15*
- Gas vs. electrically heated ovens. G. H. Trout. *Iron Tr R 57:526-4 S 16 '15*
- Science and the tariff. H. R. Pickrell. *Il Sci Am S 79:199 Mr 27 '15*
- 6000-kw electric enameling load. *Il plan Elec W 66:1702-3 Je 20 '15*
- Thermal-insulation tests of electric ovens. A. E. Kennolly, F. D. Everett, and A. A. Prior. *diag Elec W 66:779-82 Mr 27 '15*
- Using electric ovens for enameling. *Il Iron Tr R 57:215 JI 29 '15*

Electric plants

- British Portland cement making machinery; cement works at Aberthaw. *Il Engineer 119:448-9 My 7 '15*
- Central generating system for University of Michigan. *Il plans Elec W 65:846-51 Mr 13 '15*
- City and state power plants at Columbus, Ohio. T. Wilson. *Il Power 42:322-6 S 7 '15*
- Detroit flour-mill plant. T. Wilson. *Il plan Power 40:870-3 D 22 '14*
- Electrical plant of the Wakefield iron co., Wakefield, Mich. H. I. Pearl and J. Green. *Il plan Eng & Min J 100:349-51 Ag 28 '15*
- Electricity in malting houses: relative merits of isolated-plant and central-station service. *Il Elec R & W Elec'n 65:1123-5 D 12 '14*
- Equipment of large publishing house; power plant, interior wiring and special features of the Curtis publishing company's building, Independence square, Philadelphia. *Il diag plans Elec W 65:905-11 Ap 10 '15*
- Gas-tractor power plant. C. V. Hull. *Il plan Power 41:226-8 F 16 '15*
- Isolated power-house for factories. W. E. Francis. *Il Gen Elec R 18:1057-65 N '15*
- Kansas city terminal power plant. *Il Elec W 65:1468-70 Je 5 '15*
- Keeping down peaks on power purchased on a peak basis. T. E. Tynes. *Il diag Am Inst 10 Pro 33:1021-0 Je '14; Discussion. 34:79-84 Ja '15*
- Life of building power plants. C. M. Ripley. *Sci Am S 77:130-1 F 28 '14; Same. Am Soc Heat & V 20:98-105 '14; Same cond. (How long can a private electric plant run before it has to be replaced?) Am Inst Arch J 2:34-7 F '14; Discussion. Am Soc Heat & V 20:106-11 '14*
- Lucerne power plant and tipple of the Rochester & Pittsburgh coal and iron co. C. M. Young. *Il Colliery 36:1-6 Ag '15*
- Motor-driven plant of the Dallas news. A. C. Scott. *Il plan Elec W 65:462-5 F 20 '15*
- N. B. L. A. committee report on prime movers. *Elec W 65:1512-13 Je 12 '15; Elec R & W Elec'n 66:1111 Je 12 '15*
- Operating data in connection with federal buildings under control of the Treasury department. N. S. Thompson. *Heat & Ven 12:13-17 JI; 17-20 Ag '15*
- Operating features of a small plant; details of power-plant layout, operating conditions, condensing arrangements and motor service. *Il diag Elec W 65:355-7 Ag 14 '15*
- Power plant of the Acme tea company. *Il plans Power 40:906-10 D 29 '14*
- Power plant of the government printing office. D. H. Tuck. *diag plan Power 41:576-80 Ap 27 '15*
- Power plant testing. W. M. Selvey. *diag Engineer 118:555-6 D 11 '14*
- Private electrical plant at Kensington. *Il diag Engineer 120:432-3, 436 N 5 '15*
- Problems in power-plant design. (Engineers' study course) C. J. Hubbard. *diag Power 40:580-1, 618-20, 655-6, 692-4, 724-6, 758-60, 790-2, 820-2, 858-60, 894-7, 931-2; 41:32-4, 66-8 O 20 '14-Ja 12 '15*
- Rosellier, Pm., power plant. *Il Colliery 35:633-6 JI '15*
- Small aero-electric plant. M. J. Williamson, Jr. *Il Sci Am 113:200-1 S 4 '15*
- Small isolated plant pays big dividends. T. Wilson. *Il Power 41:51-4 Ja 12 '15*
- Storage batteries for handling peak loads. M. Brown. *Power 41:470-1 Ap 6 '15*
- Utilization of waste heat for the generation of electrical energy. H. Holborn. *diag Inst. 10 J 53:844-8 Je 15 '15*
- Walt turbo-generator on elevator load in the Lumber exchange building, Chicago. *Il diag Power 42:717-20 N 23 '15*
- Western newspaper union plant in Chicago. T. Wilson. *Il plan Power 41:2-5 Ja 5 '15*
- Why the isolated plant should win. H. D. Jackson. *Power 40:846-7 JI 15 '14*
- See also **Electric power**; **Electric railroads**—**Substations**; **Electric transmission**; **Hydro-electric plants**; **Steam plants**

Central stations

- Addition to the Westport power plant. W. O. Rogers. *Il plan Power 41:390-5 Mr 23 '15*

Netherlands; extracts from the official report

of commission. *Il. Verhagen, Elec W 66:589*
8 11 '15
New England central stations and the war.
Il. T. Sands, Elec W 65:7 Ja 3 '15
New York Interborough power plant enlarge-
ment. *Il dings Elec Ry J 45:744-9 Ap 17 '15*;
Same. *Elec W 65:275-9 Ap 17 '15*
Norfolk & Western electrification. *Il Power 41*;
830-5 Jo 22 '15
Oil-burning stand-by plants. *C. H. Delany,*
Power 42:172-5 Ag 3 '15; Abstract. *Elec W*
65:1511 Jo 12 '15
Oil engine for off-peak load. *L. H. Morris,*
Power 41:351-2 Mr 9 '15
Owego, N. Y., light and power plant. *G. New-*
oil, Il plan Power 42:767-8 N 30 '15
Outlook for central stations in Pacific north-
west. *O. B. Coldwell, Elec W 65:9 Ja 2 '15*
Outputs of large generating systems. *Elec W*
65:826-7 Mr 27 '15
Power plant at Kincaid. *Ill. T. Wilson, Il dings*
plans Power 42:430-4 S 28 '15
Power plant of the Hughes electric co. *C. P.*
Larsen, Il Power 41:732-5 Jo 1 '15
Projected new power station for Manchester.
Engineer 119:235-6 Mr 5 '15
Proposed Manchester generating station. *S. L.*
Peanco, Elec R & W Elec'n 67:672-3 () 9 '15
Recent developments in steam-electric gener-
ating stations. *J. Hunter, Am Soc M E J*
37:223-5 Ap '15
Single-unit power plants. *J. C. Hawkins,*
Power 41:855-6 Jo 22 '15
Small electric generating stations; applica-
bility of oil engines for plants in small
towns. *G. C. Shand, Il plan Elec W 65:933-5*
Ap 19 '15
Springfield (Ohio) railway power plant rebuilt
without interfering with operation. *Il dings*
plan Elec Ry J 46:898-902 () 30 '15
Storage battery for electric plants. *J. F.*
Springer, Il Munk J 37:915-17 () 24 '14
System of the Columbus railway and light co.
Il Power 42:333-11 S 7 '15
Turbogenerators for New Haven and Bridge-
port. *Conn. Il Elec R & W Elec'n 65:1151-2*
D 12 '14
Virginia power company's Cabin Creek plant.
Il dings plan map Elec W 66:239-41 J 31 '15
Well designed central station at Durand. *Ill.*
Il plan Elec R & W Elec'n 66:642-4 Ap 3 '15
Why the manufacturer prefers to use central-
station power. *Il. H. Holding, Elec W 65*;
1231-2 My 15 '15
Wood River electric generating station. *Il En-*
gineer 119:560-5 My 21 '15
See also Electric plants, Municipal; Elec-
tric service companies; Electric shops; Elec-
tric transmission; Electric vehicles and the
central station; Hydroelectric plants; Steam
plants
Cost of equipment
Central station investment to serve electric-
range load. *Elec W 66:706 S 25 '15*
Costs of electrical equipment. *Elec W 64:1204*
D 19 '14
Economics of electric power station design.
Il. F. Parshall, Elec W 66:690 S 25 '15
Costs
Central-station rate making. *P. J. Klefer,*
Power 42:264-70 Ag 24 '15
Load-factor, output and cost; abstract. *C. A.*
Linker, Elec W 66:120 J 13 '15
Management
Central station management. *See* weekly num-
bers of Electrical world
Combined operation of steam and hydraulic
power in the Pennsylvania water and power
company system. *J. A. Wallis, Am Inst E E*
Trs 34:229-2306 () '15
Convenient operating reports for steam plants.
Elec W 66:1623-5 Ja 19 '15
Electric vehicle situation in New England
and other commercial subjects discussed at
N. E. L. A. convention. *Elec W 65:803-5 Mr*
27 '15
Experiences of small-plant operator; econo-
mies effected by high-efficiency oil engine
unit. *R. B. Pollister, Il Elec W 65:1185-6*
Mr 2 '15

Electric plants—Central stations—Management.—*Continued*

Graphic representations of power-plant losses. E. D. Dreyfus. *Power* 41:638-9 My 11 '15
Ice-making as a by-product of central stations. F. Cochran. *El diag* Am Soc M E J 87:369-74 J1 '15

Load dispatching on large generating and distributing systems discussed before A. I. E. E.; abstracts. F. Kent. *Elec R & W* *Elec'n* 67:767-8 O 23 '15; *Elec W* 66:904 O 23 '15

Load dispatching system of the Columbus railway, power and light company. H. W. Clapp. *El Gen Elec R* 17:912-14 S '14

Log sheets at Delray station. N. G. Reinecker. *Power* 42:482-4 O 5 '15

Management of central stations. W. N. Polakov. *Eng M* 60:52-8, 367-72 O, D '15

Practical operation of central stations. *Elec W* 65:786-7 Mr 27 '15

Purchased power for the steel mill; economic advantages of central station current. C. S. Lankton. *Iron Tr R* 67:573-5 S 23 '15

Residential load characteristics. *Elec R & W* *Elec'n* 66:946 My 22 '15

Selling current on a small margin; a small water and steam plant. T. Wilson. *El diag* *Power* 42:498-501 O 12 '15

Supervising 840 miles of lines; how the load dispatcher of the San Joaquin (Cal.) system adjusts even plant water supply. L. J. Moore. *El map* *Elec W* 65:1422-4 My 20 '15

Supplemental power for hydroelectric systems. J. F. Vaughan. *Am Inst M E Pro* 34:2307-19 O '15

Work of the load dispatcher. R. R. Robley. *El diag* *Elec W* 65:1418-21 My 20 '15

See also Electric service companies

Records

Meter-record forms for a small central station. *Elec W* 66:256-6 J1 31 '15

Motor-service data at a glance. *El Elec W* 66:370 Ag 14 '15

Statistics

Analysis of central-station practice in Wisconsin regarding rural service. *Elec R & W* *Elec'n* 66:237-9 J1 6 '15

Better business in generating field. *Elec W* 65:726-8 Mr 20 '15

Census of employees and wages. *Elec W* 65:600 Mr 6 '15

Census of generating equipment. *Elec W* 65:291-2 Ja 30 '15

Census of primary power equipment. *diag* *Elec W* 65:216-16 Ja 23 '15

Census report on capitalization. *Elec W* 65:467-9 F 20 '15

Central electric stations; relative number and capacity of municipal and private plants. *Mun J* 39:253-4 Ag 19 '15

Central-station conditions. *Power* 41:827 Je 15 '15

Central-station gains. *Elec W* 66:177-9 J1 24 '15

Central-station operations; totals of income and output in first four months of war period show an increase. *Elec W* 65:473-5 F 20 '15

Central-station returns for first quarter of 1915 show better gains than last quarter of 1914. *Elec W* 65:1610-12 Je 19 '15

Continued gain in light and power industry. *Elec W* 65:456-8 Ag 28 '15

Electric lighting data: station equipment—amount of current used for street lighting and other purposes—fuel statistics—number and kind of lamps used for street lighting—ornamental lighting—rates. *Mun J* 38:884-94 Je 24 '15

Facts and factors of California. *Elec R & W* *Elec'n* 66:1028 Je 5 '15

Facts and factors of Iowa central stations. *Elec R & W* *Elec'n* 66:818-19 My 1 '15

Industrial improvement reflected; central-station gains in output of electrical energy for January and February. *Elec W* 65:1242-4 My 15 '15

Interconnected systems serving San Francisco; details of the generating equipments and transmitting circuits. *El diag* map *Elec W* 65:1350-82 My 20 '15

Iowa central-station facts and factors. *Elec W* 65:1128-9 My 1 '15

Massachusetts electric companies show decided gains. *Elec R & W* *Elec'n* 67:604 O 2 '15

Operating data and costs for Coffeyville, Kansas plant serving city of 15,000. *Elec W* 66:886-7 O 16 '15

Operating expenses of Massachusetts steam stations. *Elec W* 66:302-3 Ag 7 '15

Stability in the central-station industry. F. Nicholas. *Elec W* 66:572-4 S 11 '15

Steady increase in light and power operations. *Elec W* 66:1025-7 N 6 '15

Substantial growth in the central-station field. *Elec W* 66:748-50 O 2 '15

Testing

Power plant testing. W. M. Selvey. *diag* *Inst M E J* 53:109-18; *Discussion*. 53:118-46, 191-8, 743-7 Ja 1-15, My 15 '15

Valuation

Valuation of Milford, Mass., utility property. *Elec R & W* *Elec'n* 67:761-2 O 23 '15

Cost

Design, construction and unit costs of the power house for the new smelter of the Arizona copper co., Ltd., Clifton, Ariz. *diag* plans *Eng & Contr* 42:202-5 S 16 '14

See also Hydroelectric plants—Cost

Damages from floods

Power plant and the Ohio flood. F. C. Caldwell. *Sibley J* 29:175-8 Mr '15

Load curves

Electricity for irrigation pumping. *El Elec R & W* *Elec'n* 66:1022-8 Je 5 '15

Irrigation pumping in the coast states. *El map* *Elec W* 65:1399-1408 My 29 '15

Load curve relief map. M. Du Bois. *Elec W* 66:137 J1 17 '15

Operation at Delray station. N. G. Reinecker. *Power* 42:414-15 S 21 '15

Striking form of load-curve chart used to obtain municipal loads. *Elec W* 66:1035 N 6 '15

Supervising 840 miles of lines; how the load dispatcher of the San Joaquin (Cal.) system adjusts even plant water supply. L. J. Moore. *El map* *Elec W* 65:1422-4 My 20 '15

Work of the load dispatcher. R. R. Robley. *El diag* *Elec W* 65:1418-21 My 20 '15

Management

Controlling the cost of electricity. W. N. Polakov. *Eng M* 49:235-40 My '15

Record keeping in the power plant. S. J. T. White. *Power* 41:243-4 F 16 '15

See also Electric service companies—Management

Substations

A. C. service from battery. J. A. Walton. *diag* *Elec W* 66:975-6 O 30 '15

Cement-plant substation for receiving Mississippi river power. *El Elec R & W* *Elec'n* 66:1040 Je 5 '15

Central-station development at Portland, Me. *El diag* *Elec W* 65:590-2 Mr 6 '15

Cooling-water pond and system for a city substation. F. Buch. *diag* *Elec W* 65:297-9 Ja 30 '15

Development and operation of outdoor substations. F. L. Hunt. *Elec R & W* *Elec'n* 67:845-7, 936-7 N 6, 20 '15

45,000-kw. synchronous converter substation of the Aluminum company of America at Massena Springs, N. Y. J. L. Burdum and R. C. Muir. *El diag* *Gen Elec R* 18:873-8 S '15

Georgia-Carolina company transmission system. *El diag* *Elec W* 66:1189-91 N 27 '15

High-capacity outdoor substation on high-tension line. *El Elec R & W* *Elec'n* 66:1312 Je 26 '15; *Elec W* 65:1644 Ja 19 '15

Hydroelectric development on Bishop Creek, Cal. C. O. Poole. *Elec W* 64:1093-4, 1193-6 D 5, 19 '14

Installing a 2000-kw. substation in fifteen days. *El Elec W* 65:807 Mr 6 '15

Large-capacity outdoor substations for industrial service. *El Elec R & W* *Elec'n* 67:263 Ag 7 '15

Largest industrial substation served by Boston Edison system. *El Elec W* 66:695 S 25 '15

Model factory substation at Worcester, Mass. *El Elec R & W* *Elec'n* 66:1196-7 Ja 26 '15

Electric plants—Substations—Continued

- New combination substation of the Philadelphia electric company. *Il Elec R & W Elec'n* 67:67-8 J1 10 '15
- One boiler room instead of fifty; Cabin Creek plant of the Virginia power company. *Il diag's Elec W* 66:286-81 Ag 7 '15
- 100,000-volt portable substation. C: I. Burkholder and N. Stahl. *Il diag's Am Inst E* 10 Pro 34:209-20 P '15; Abstract and discussion. *Elec W* 66:625-6 P 27 '15; Discussion. *Am Inst E* 10 Pro 34:252-2 O '15
- Outdoor-indoor design of substation at East St. Louis, Ill. *Il plan Elec W* 66:802-4 () 9 '15
- Outdoor substation for railway signal work. *Elec R & W Elec'n* 66:649-60 Ap 3 '15
- Outdoor substation of large rating for industrial service. *Il Elec W* 66:324 Ag 21 '15
- Plant problem solved by purchased service; American manufacturing company, Brooklyn. *Il Elec W* 66:628-33 S 18 '15
- Service re-established at Keebler mine within fifty hours after total destruction of substation. *Il Elec R & W Elec'n* 66:547-8 Mr 20 '15
- 66,000-volt outdoor substation of small rating in the Niagara district. *Il Elec W* 66:867 () 16 '15
- Sub-station efficiencies. *Engineer* 119:165 P 12 '15
- Substation of Lancaster Edison company; compact arrangement of transformer and switching equipment. *Il Elec W* 66:1033-5 Ap 24 '15
- Substation to serve New York theater district. *Il plans Elec W* 66:1020-3 N 6 '15
- Substations for industrial plants. *Il Elec W* 66:663-4 Mr 13 '15

See also Electric railroads—Substations

Valuation

- Evaluating the isolated plant. R. W. Rollins; *Il. H. Holding; A. Williams. Elec W* 66:772-3 Mr 27 '15

Water supply

- Solving feed-water and condensing water problems at Kokomo, Ind. *diag's Elec W* 66:1048 Ap 24 '15

Electric plants, Municipal

- British municipal station report; abstract. *Elec W* 66:1210 N 27 '15
- Census of municipal plants. *Elec W* 66:161-2 Ja 16 '15
- Central electric stations; relative number and capacity of municipal and private plants. *Munic J* 39:253-4 Ag 19 '15
- City and state power plants at Columbus, Ohio. T: Wilson. *Il Power* 42:322-3 S 7 '15
- Cleveland municipal electric costs near estimate. *Eng N* 74:859 () 28 '15
- Cleveland municipal light plant. *Munic J* 39:388 S 9 '15
- Cleveland municipal plant developments. *Elec W* 66:1647-8 Jo 19 '15
- Cleveland's municipal electric light plant. *Il diag's Munic J* 38:889-75 Jo 24 '15
- Columbus municipal plant earns profits. *Elec W* 66:179 J1 24 '15
- Columbus, Ohio—decision for municipal light plant. *Power* 41:354-5 Mr 9 '15
- Cost of combination electric service; investigation at Calgary, Alberta. *Elec W* 66:1181-3 My 8 '15
- Danville's municipal power plant. *Il Munic J* 38:876-7 Jo 24 '15
- Data on municipal-plant operation in Oklahoma. *Elec W* 66:1673-4 Jo 12 '15
- Derby electricity undertaking. *Elec W* 66:250 J1 31 '15
- Design and operation of the Cleveland municipal electric light plant; abstracts, with discussion. R: W. Ballard. *Il diag's Am Soc M* 10 J 37:104-11 P '15; *Power* 41:104-5 Ja 19 '15; Abstract of discussion. *Elec W* 66:1189-40 D 12 '14
- Detroit's municipal lighting plant. T: Wilson. *Il plan Power* 40:832-5 D 16 '14
- Electric light plant of South Norwalk, Conn. *Il Munic Eng* 49:137-40 () '15

- Engineering features of Cleveland station. *Il Elec W* 66:1619-22 Jo 19 '15
- English electricity works conference. *Elec R & W Elec'n* 67:296 Ag 14 '15
- Extracts from annual report of the municipal plant of Shanghai. T: H. U. Aldridge. *Elec W* 66:298 Ag 7 '15
- Glendale municipal electric lighting plant. L. R. W. Allison. *Power* 42:60-1 J1 13 '15
- Holyoke gas and electricity. *Munic J* 38:258 P 25 '15
- Increasing the capacity of the Winnipeg municipal electric works. *Eng N* 73:746-7 Ap 15 '15
- Kalamazoo municipal plant. T: Wilson. *Il plans Power* 41:218-24 P 16 '15
- Lead-factor, output and cost; abstract. C. A. Baker. *Elec W* 66:20 J1 3 '15
- Massachusetts municipal electric plants. *Elec R & W Elec'n* 67:905 N 13 '15
- Municipal electric light plants: rates. *Munic Eng* 48:111-12 P '15
- Municipal electric-lighting plants in California. *Eng N* 73:338-9 P 18 '15
- Municipal operation in Pasadena, Cal.; analysis and review of annual reports. *Elec W* 66:1171-3 My 8 '15
- Municipal water and light plant of Kansas City, Kansas. P. W. Morgan. *Il Munic Eng* 48:284-5 My '15
- New plant at the Stepmey electricity works. *Il diag's Engineer* 120:385-8, 390 () 22 '15
- Opekauskas' municipal lighting plant. A. C. Jones. *Il Power* 41:41-3 Ja 12 '15
- Sale of current to municipally owned distributing systems by central stations. W. R. Collier. *Elec R & W Elec'n* 67:890-3 N 13 '15
- Seattle municipal lighting plant. W. L. Kidston. *Il plans Power* 41:182-5 P 9 '15
- Steam-generating methods, Cleveland municipal plant. A. D. Williams. *Il Power* 41:931-3 My 11 '15
- Waterloo municipal waterworks and electric light plant. *Elec R & W Elec'n* 66:77-8 Ja 9 '15

See also Hydroelectric plants, Municipal

Electric potential

- Ionizing potential of an X-ray tube. E. C. Drew. *Biblog* *Il diag J* Pr Inst 179:697-709 Jo '15

See also Electric currents; Electromotive force

Electric power

- Absolute dependability of central-station power. *Il Elec W* 66:1265-6 My 16 '15
- Buying power for the rolling mill. B. Wiley and W. Sykes. *Iron Tr* *Il* 67:530-3 S 16 '15
- Centrifugal pump from standpoint of central station. T. D. Rose. *Il Elec R & W Elec'n* 67:7-12 J1 3 '15
- Development of electric power for industrial purposes in India. H. R. Speyer. *Inst E* 16 J 63:697-694 Ap 16 '15
- Distribution of power in electric generating stations; census reports. A. A. Potter and W. A. Buck. *Elec W* 66:995-6 Ap 17 '15
- Electric-furnace power loads; abstract. F. T. Snyder. *Elec W* 66:1527 Jo 12 '15
- Electric power industry. D: H. Rushmore. *Il map Gen Elec R* 18:427-39 Jo '15
- Electricity in grain elevators. H. E. Stafford. *Il diag's Am Inst E* 12 Pro 31:1087-1103 Jo '15; Abstract. *Elec W* 66:90 J1 10 '15
- Electricity in manufacturing. *Power* 40:901-2 D 22 '14
- Features of central station power. E. Chewcrown. *Iron Tr* *Il* 67:583-1 S 23 '15
- Government as a buyer of power. A. P. Connor. *Power* 41:634 My 11 '15
- Industrial applications of electricity. A. R. Bush. *Il Gen Elec R* 18:460-82 Jo '15
- Keeping down peaks on power purchased on a peak basis. T. E. Tynes. *Il diag's Am Inst E* 10 Pro 32:1021-6 Jo '14; Discussion. 34:79-84 Ja '15
- Possibilities open to the central station in solving the freight terminal problem. J. A. Jackson. *Gen Elec R* 18:1142-4 D '15
- Power reel for cars, trucks, etc. R. H. Parsons. *diag's Elec Ry J* 48:894-5 My 8 '15

Electric power—Continued

Subdivision of power as solved by the small motor. R. E. Barker and H. R. Johnson. *Gen Elec R* 18:555-8 Je '15
Using volcanic steam for the production of electrical energy. *Il Sci Am* 112:97-8 Ja 30 '15
See also Electric distribution; Electric driving; Electric motors; Electric plants; Electric transmission; Electric units; Electricity in mining; Electricity on the farm; Hydroelectric power

Cost

See Power cost

Economy

Avoiding the no-load losses in transformers; abstract. B. Thierbach. *Elec W* 65:1117-18 My 1 '15
Law of power-house economy; abstract. R. H. Parsons. *Ind Eng* 14:467-8 D '14

Rates

Art of rate-making. A. Dow. *Elec W* 65:17-18 Ja 2 '15
Best control of public utilities. F. G. Baum. *Am Inst E* 10 Pro 34:1-23 Ja '15; Abstract. *Elec W* 65:258-9 Ja 23 '15
Central-station rate bill opposed at Boston. *Elec W* 65:441 F 13 '15
Central-station rate making. H: D. Jackson. *Power* 42:626 N 2 '15
Central-station rate making. P. J. Klefer. *Power* 42:268-70 Ag 24 '15
Charge for surplus power. H. G. D. Nutting. *Elec W* 64:1208 D 19 '14
Charging for energy; abstract. Buergelin. *Elec W* 65:859 Ap 3 '15
Class rates for light and power systems or territories. F. G. Baum. *Am Inst E* 10 Pro 34:485-505 Ap '15; Abstract. *Elec W* 66:67 J1 10 '15
Combined flat rate and meter rate; abstract. F. Punga. *Elec W* 65:788-9 Mr 27 '15
Comparison of electric light and power rates. J. C. Dickerman. *Power* 42:8-15 J1 6 '15
Computation of a rate. *Power* 41:419-20 Mr 23 '15
Development of the supply of electricity in Great Britain. A. H. Seabrook. *Elec R & W* 19:66:761-2 Ap 24 '15
Factors in rate-making. A. S. Ives. *Elec W* 65:655-7, 783-6, 887-9 Mr 13, 27, Ap 17 '15
Government furnishes cheap electricity in southern Idaho. H. B. Walker. *Power* 41:228-9 F 10 '15
Hood River gas and electric company rate decision. *Elec R & W* 19:66:191-2 J1 31 '15
Houston, Texas, has co-operative lighting franchise. P. H. Sheldon. *Munic Eng* 48:41-3 Ja '15
Indianapolis electric rate cases. *Elec R & W* 19:66:235-7 Ag 7 '15
Marlborough electric company; rate decision. *Elec R & W* 19:66:1063-4 Je 5 '15
Massachusetts hearing on rates. *Elec R & W* 19:66:347 F 20 '15
Merchants boat and light company, Indianapolis; decision of commission. *Elec R & W* 19:66:287-8 Ag 14 '15
Multiplex cost and rate system. O. B. Goldman. *Am Inst E* 10 Pro 34:941-57 My '15; Discussion. 34:2002-5 N '15
N. Y. L. A. committee report on rate research. *Elec W* 65:1627-8 Jc 12 '15
New rate schedule at Sioux City, Iowa. *Elec R & W* 19:66:323 Ag 21 '15
New rates of New York Edison company. *Elec W* 65:1159-60 My 8 '15
New York Edison company; opinion and order of the first district commission. *Elec R & W* 19:66:802-4 O 30 '15
New York rate reduction accepted. *Elec W* 65:828 Mr 27 '15
Northwest light and water company; decision of commission. *Elec R & W* 19:66:976-7 N 27 '15
Point five tariff. A. S. Blackman and T. Roles. *Elec W* 66:185-6 J1 24 '15
Power-factor as element of rates. F. Ghilardi. *Elec W* 66:410-11 Ag 21 '15
Railway power rates in Chicago. *Elec Ry J* 46:138 J1 24 '15

Rate discrimination in Massachusetts. H: D. Jackson. *Power* 41:549-50 Ap 20 '15
Rates and by-products. J. R. Cravath. *Elec W* 65:1029 Ap 24 '15
Rates and rate making. P. M. Lincoln. *diag* *Am Inst E* 10 Pro 34:2175-2214 O '15; Abstract. *Elec R & W* 19:66:722-3 O 16 '15
Rates for light and power; tabulation. *Munic J* 38:893 Je 24 '15
Reasons for different rates. *Power* 41:550-1, 684-5 Ap 20, My 18 '15
Reasons for different rates. C: R. Seed. *Power* 41:383 Mr 16 '15
Resale of energy by customer to second central station. *Elec W* 66:704-5 S 25 '15
Rhinelander (Wis.) power company. *Elec R & W* 19:66:588-9 Mr 27 '15
Service rates and power-factor. *Elec W* 66:1209 N 27 '15
Simplified rate schedule of Springfield, Mass., company. *Elec R & W* 19:66:753 O 23 '15
Tariff in China (central station). L. Schmidt-Harms. *Elec W* 66:138 J1 17 '15
Tendencies in central-station rate-making. F: Nicholas. *Elec W* 66:907-9 O 23 '15
Theories of electric current rate schedules. H: D. Jackson. *Eng M* 48:728-31 F '15
Uniform electric rates based on costs. H: D. Jackson. *Elec W* 66:60, 236-7 J1 10, 31 '15
Uniform electric rates based on costs. W: Adams. *Elec W* 66:666-7; 66:124-5 Je 26, J1 17 '15
Value of the service in rate-making. H. H. Holding. *Elec W* 65:1031-2 Ap 24 '15
Waterloo municipal waterworks and electric light plant. *Elec R & W* 19:66:77-8 Ja 9 '15
Electric power, Sale of. *See* Electric service companies
Electric power distribution. *See* Electric distribution; Electric transmission
Electric precipitation
Abstracts of papers on electrical precipitation presented before the American Institute of electrical engineers. *Elec R & W* 19:66:393-4 F 27 '15; *Elec W* 65:527 F 27 '15; *Met & Chem Eng* 13:160 Mr '15
Condensing silver-refinery fumes by Cottrell process. C: H. Aldrich. *Eng & Min J* 100:681 O 23 '15
Electrical precipitation of dust. *Iron Age* 95: 440-50 F 25 '15
Electrical precipitation of suspended matter. *Mach* 21:770 My '15; *Same.* *Sci Am S* 80: 263 O 23 '15
Electrical precipitation: theory of the removal of suspended matter from fluids. W. W. Strong. *Am Inst E* 10 Pro 34:229-36 F '15; Discussion. 34:2646-52 N '15
Electrical process for detarring gas. F. W. Steere. *Il diag Met & Chem Eng* 12:775-8 D '14; *Same.* *Am Gas Inst Pro* 9:pt 1, 178-89 '14; *Same* cond. *Eng N* 73:1007 N 10 '14; *Same* cond. *Eng M* 48:736-9 F '15; Discussion. *Am Gas Inst Pro* 9:pt 1, 189-99 '14
Gas volume and dust concentration determination in connection with the Cottrell process. W: N. Drew. *diag Am Soc M E* J 37: 670-8 D '15
Historical sketch. F. G. Cottrell. *Am Inst E* 10 Pro 34:625-34 Ap '15
Metallurgical smoke. C: H. Fulton. *diag U S Bur Mines* 131 84:59-65 '15
Practical applications of electrical precipitation and progress of the Research corporation. L. Bradley. *bibliog Il Am Inst E* 10 Pro 34:523-65 Ap '15; Abstract. *Eng M* 49: 426-7 Je '15; Discussion. *Am Inst E* 10 Pro 34:2646-52 N '15
Preventing smoke electrically. H. C. Wolf. *Il Elec W* 66:602-3 S 25 '15
Solution of smoke, fume and dust problems by electrical precipitation. L. Bradley. *Met & Chem Eng* 13:911-14 D 1 '15
Theoretical and experimental consideration of electrical precipitation. A. F. Newbit. *Il diag Am Inst E* 10 Pro 34:507-22 Ap '15; Discussion. 34:2646-52 N '15
Treatment of silver-furnace fumes by the Cottrell process; abstract with discussion. C: H. Aldrich. *Elec R & W* 19:66:826-7 O 2 '15
Electric propulsion of ships. *See* Ship propulsion, Electric

Electric protective apparatus

- Apparatus for protecting against surges. *Il*
 Elec W 66:421-2 Ag 21 '15
 Automatic protective switchgear for alternating-current systems. *Il* E. Wedmore. *diags*
 Inst E E J 53:157-68 Ja 15 '15; Same cond.
 Engineer 119:336-7 268 Mr 5-12 '15; Abstract. Elec R & W Elec'n 66:28 Ja 2 '15;
 Discussion. Inst E E J 53:169-83, 374-86,
 608-8 Ja 15, Mr 1, Ap 15 '15
 Balance systems of protection; abstract. C. C.
 Garrard. *diag* Elec W 65:1684 Je 26 '15
 Control and protection of electric systems.
 C: P. Steinmetz. *J* Er Inst 180:1-16 J1 '15;
 Same. Gen Elec R 18:887-94 S '15; Same
 cond. Power 42:176-7 Ag 3 '15; Same cond.
 Sci Am S 80:202-3 S 25 '15
 Discussion on reactance by American Institute
 of electrical engineers. Am Inst E E Pro 34:
 1309-22 Je '15
 Dostal dropout. *Il* *diag* Elec R & W Elec'n 67:
 634 O 2 '15
 Explosion-proof apparatus. W. Baum. Am
 Inst E E Pro 34:2680-6 N '15
 Feeder protective system. *Il* *diags* Elec W
 66:991-2 Ap 17 '15
 Four years' operating experience on a high-
 tension transmission line. A. Bang. *diags*
 pls Am Inst E E Pro 34:1440-5 J1 '15; Abstract. Elec W 66:11 J1 '15
 Fused transformer cut-out. *diag* Elec W 66:
 772 O 2 '15
 High-capacity pole-type cutout. *Il* Elec R &
 W Elec'n 67:631-2 O 2 '15
 High voltage arrester for telephone lines.
 E. P. Peck. *Il* Gen Elec R 18:189-94 Mr '15
 High-voltage, high-capacity cutout. *Il* Elec
 R & W Elec'n 66:510-11 Mr 13 '15
 Low-gravity cutout for storage battery. W: E.
 Dixon. *diag* Power 41:720 My 25 '15
 Metropolitan inclosed service switch and
 meter-protecting device. *Il* Elec R & W
 Elec'n 66:129 Ja 16 '15
 Palmer inclosed service switch and meter-protecting
 device. *Il* Elec R & W Elec'n 66:270-1
 F 6 '15
 Proper construction of earth connections.
 G. H. Rettew. Gen Elec R 18:904-7 S '15;
 Abstract. Engineer 120:462 N 12 '15
 Protecting linemen when using telephone circuits
 paralleling transmission lines. *Il* Elec
 W 66:812 O 9 '15
 Protecting synchronous converters. plan Power
 42:171-2 Ag 3 '15
 Protection against over-pressure. Elec W 65:
 74-5 Ja 9 '15
 Protection and control of industrial electric
 power. C: P. Steinmetz. *Il* Gen Elec R 18:
 879-85 O '15
 Protection of direct-current generators. *diags*
 Elec R & W Elec'n 67:617-19 S 18 '15
 Protection of high-tension circuits against
 dangerously high voltages; abstract. K. Edg-
 cumbe. *diags* Elec W 66:94 Ja 9 '15
 Protective apparatus for alternating-current
 tie lines. *Il* Elec W 66:603 S 11 '15
 Protective reactance coils. *Il* *diags* Elec W 65:
 945-9 Ap 10 '15
 Relay for protecting single a. c. tie lines. *Il*
diag Elec Ry J 46:599-600 S 18 '15
 Safety-first features of electrical construction.
 N. G. Meade. *diags* Elec R & W Elec'n 66:
 764-6 Ap 24 '15
 Subway-type high-tension oil fuse cutouts.
Il *diag* Elec R & W Elec'n 66:700-1 Ap 10
 '15
 Theoretical investigation of electric transmission
 systems under short circuit conditions.
 I. W. Gross. Am Inst E E Pro 34:35-69 Ja '15;
 Abstract. with discussion. Elec W 65:163-4
 Ja 16 '15; Discussion. Am Inst E E Pro 34:
 2851-68 N '15
 Trouble near wireless stations. Elec R & W
 Elec'n 67:900 N 13 '15
 2600-volt primary cut-out box. *Il* Elec W 66:
 996 O 30 '15
 Two synchronous-motor protection schemes.
 E. E. George. *diags* Elec W 66:142-3 J1 17
 '15
See also Electric circuit breakers; Electric
 engineering—Safety devices and measures;
 Electric fuses; Lightning arresters

Electric radiators

- Experiments on the heating of screw-socket
 lampholders. C. C. Paterson. *Il* *diags* Inst
 E E J 53:14-17 D 1 '14
 Lee electric radiators. *Il* Elec R & W Elec'n
 67:990-1 N 27 '15
 Mantel-type electric radiators. *Il* Elec R &
 W Elec'n 66:315 F 13 '15
Electric railroads
 Annual convention of C. E. R. A., Indianapolis,
 Ind., Feb. 25-26. Elec Ry J 45:411-13, 455-61
 F 27-Mr 6 '15
 C. E. R. A. November meeting. Elec Ry J
 46:1038-9, 1076-N 20-27 '15
 Convention of Pennsylvania association. Elec
 Ry J 44:1298-9 D 12 '14
 Graphic method for speed-time and distance-
 time curves. E. C. Woodruff. Am Inst E E
 Pro 33:1689-92 N '14; Discussion. Am Inst E
 E Pro 34:2804-46 N '15; Abstract. Elec Ry J
 44:1155-6 N 21 '14
 Illinois electric railway association discuss
 economies in power consumption, feeder-
 tap protection and care of commutators, and
 one-man cars. Elec Ry J 45:626-8 Mr 27 '15
 The industry and the association. C. L. Allen.
 Elec Ry J 46:701-4 O 9 '15; Excerpt (Steam
 railway sentiment from an electric railway
 source) Ry R 57:484-5 O 16 '15
 New York electric railway association 33d
 annual convention, June 29-30. Elec Ry J
 46:14-20 J1 '15
 Recent electrical progress. Engineer 119:11-12
 Ja 1 '15
 Recommendations of Interstate commerce com-
 mission and parts of report of general interest
 to electric railways. Elec Ry J 44:1358-9
 D 19 '14
 Review of electric railways. W. B. Potter and
 G. H. Hill. *Il* Gen Elec R 18:444-53 Je '15
 Seven years of operating experience of a
 single-phase interurban railway; Chicago,
 Lake Shore & South Bend railway. *Il* map
 Elec Ry J 46:940-5 N 6 '15
 Starting resistance of electric cars. F. H.
 Wynne. Elec Ry J 46:401-2 S 4 '15
 Train resistance of electric cars at starting.
 D. D. Ewing. Elec Ry J 46:279-80, 637 Ag
 14, S 25 '15
 20th quarterly meeting of N. Y. E. R. A. at
 Lake George, March 2-3. Elec Ry J 45:464-
 7 Mr 6 '15
See also Car houses; Cars; Electric lines;
 Electric locomotives; Electric motors, Rail-
 way; Elevated railroads; Interurban rail-
 roads; Railroads—Electrification; Street cars;
 Street railroads; Subways; Suspended rail-
 ways
Accounting
 American electric railway association; Ac-
 countants' papers and proceedings. Elec Ry
 J 46:738-44 O 9 '15
 Analyzing the balance sheet. L. T. Hixson.
 Elec Ry J 45:1112-13 Je 12 '15
 Annual meeting of C. E. R. A. accountants.
 Elec Ry J 44:1384-7 D 19 '14
 Banner year in accounting progress. Elec Ry
 J 45:9-10 Ja 2 '15
 Central electric railway accountants' associa-
 tion 27th meeting. Elec Ry J 45:1151-4 Je
 19 '15
 Electric railway accounting review. P. V. Bur-
 ington. Elec Ry J 46:720-1 O 9 '15
 Importance of accrued accounts. J. F. Forbes.
 Elec Ry J 46:809-10 O 16 '15
 Simple work-order system. M. W. Glover. Elec
 Ry J 46:441-2 S 11 '15
 Timekeeping and cost records for way depart-
 ment. S. Gausmann. Elec Ry J 46:596-8 S
 18 '15
 Value of railway statistics. G: B. Willcutt.
 Elec Ry J 46:705-7 O 9 '15
 Way records. E. P. Roundey. Elec Ry J 45:
 945-6 My 15 '15
 Way records on cost per section basis. F. W.
 Hulett. Elec Ry J 45:669-71 Ap 3 '15
 Who should keep way department time? Elec
 Ry J 46:635-5 S 25 '15
Advertising
 Advertising car in Boston. *Il* Elec Ry J 46:149
 J1 24 '15

Electric railroads—Continued

Baggage

Is the handling of free baggage a traffic error?
C: J. Laney. Elec Ry J 45:412-13 F 27 '15

Coasting

Ampere-hour meters on the Annapolis short line. Elec Ry J 45:722-3 Ap 10 '15
Coasting; Denver tramway gave experience with coasting clocks, showing resulting energy economy. H. P. Flagg. Elec Ry J 45:705-6 Ap 10 '15
Coasting recorders in New York. II Elec Ry J 45:572-5 Mr 20 '15
Coasting records of Northern Texas traction company. II Elec Ry J 45:1198-1200 Je 20 '15
Reduction in power cost effected by the use of coasting recorders. W. R. Alberger. Elec Ry J 45:520-1 S 18 '15
Relation between car operation and power consumption. J. F. Layng. Gen Elec R 18:973-6 O '15
Scientific coasting at Oakland. II Elec Ry J 45:268-71 Ag 14 '15
Use of coasting recorders results in economies at Vancouver. W. G. Murrin. II Elec Ry J 45:573-4 S 18 '15

Construction

Catenary construction of New York, Westchester and Boston railway. S. Withington. II diag plans J Fr Inst 178:705-42 D '14
Construction, maintenance and cost of overhead contact systems; catenary construction. F. Zogbaum. Am Inst E E Pro 34:1267-81 Je '15; Abstract. Elec Ry J 45:56-7 J 10 '15
Contact conductors and collectors for electric railways. C. J. Hixson. II diag Am Inst E E Pro 34:1477-90 Ag '15; Abstract. Elec Ry J 45:80-1 J 10 '15
Contact system of the Butte, Anaconda & Pacific railway. J. B. Cox. II diag map Am Inst E E Pro 34:1447-76 Ag '15; Same. Gen Elec R 18:842-59 Ag '15
Dead-ending feeders to metal poles. G. H. McKelway. II Elec Ry J 45:143-4 Ja 16 '15
Discussion on contact systems for electric railroads. (See Proceedings for June and August, 1915) Am Inst E E Pro 34:3068-77 D '15
Double trolley system in Seattle. H. J. Kennedy. II Elec Ry J 45:128-9 Ja 16 '15
Electric traction on the Norfolk & Western railway. II Eng N 73:1238-43 Je 24 '15
Electrification of 440.5 miles of the St. Paul. II map Ry Age 59:683-9 O 15 '15
Electrolysis mitigation. Am Gas Light J 103:129-30 Ag 30 '15
Electrolysis mitigation. Am Gas Light J 103:268 O 25 '15
Electrolysis mitigation in Springfield and New Ellryia, Ohio. Elec R & W Elec'n 67:435 S 4 '15
High-voltage third-rail construction. A. H. Tracy. diag Elec Ry J 45:469-70 Mr 6 '15
Michigan railway—first 2400-volt third-rail line is built. II Eng Rec 72:40-1 J 10 '15
Michigan railway's 2400-volt, third-rail line. II diag map Elec Ry J 45:1144-9 Je 19 '15; Abstract. Eng M 49:753 Ag '15
New heavy electric railroad opened in Michigan. diag Eng N 74:218-13 J 29 '15
Overhead contact systems, construction and costs. El. J. Amberg. pls Am Inst E E Pro 34:1255-66 Je '15; Abstract. Elec Ry J 45:56 J 10 '15
Overhead electrolysis and porcelain strain insulators. S. L. Foster. II Am Inst E E Pro 34:1549-53 Ag '15; Abstract. Elec Ry J 45:582-3 S 18 '15
Pennsylvania electrification at Philadelphia. II Elec R & W Elec'n 67:923-8 N 20 '15
Pennsylvania inaugurates electric service in Philadelphia. II diag Eng Rec 72:590-3 N 13 '15
Pennsylvania R. R. electrification at Philadelphia. II map Ry Age 59:889-94 N 13 '15
Pennsylvania R. R. electrifies Philadelphia district. II map Eng N 74:980-3 N 11 '15
Pennsylvania R. R.—Philadelphia-Paoli electrification. II diag Elec Ry J 45:980-9 N 13 '15

Pennsylvania railroad's suburban line at Philadelphia electrification. II diag map Ry R 57:611-19 N 13 '15
Progress on the Chicago, Milwaukee & St. Paul electrification. II Elec R & W Elec'n 67:769-71 O 23 '15; Elec Ry J 45:794-8 O 18 '15; Eng Rec 72:518 O 23 '15; Ry R 57:556-8 O 30 '15; Power 42:645-6 N 9 '15
Railway return circuits. F. V. Skelly. Elec Ry J 45:794-5 Ap 24 '15
San Francisco-Oakland terminal railways' way standards. G. H. Binkley. II Elec Ry J 45:523-6 S 18 '15
Third rail and trolley system of the West Jersey and seashore railroad. J. V. B. Duer. II diag Am Inst E E Pro 34:1237-53 Je '15
Top contact unprotected conductor rail for 600 volt traction systems. C. H. Jones. II Am Inst E E Pro 34:1233-93 Je '15; Abstract. Elec Ry J 45:65-6 J 10 '15
2400-volt railway of the Bethlehem-Chile iron mines company. E. E. Kimball. Gen Elec R 18:12-14 Ja '15
Vienna-Pressburg single-phase railway. E. E. Seefehner. II Elec Ry J 45:828-31 My 1 '15
See also Electric railroads—Wiring; Poles, Concrete; Railroads—Electrification

Control

Equipment defects—control apparatus and connections. C. W. Squier. Elec Ry J 44:1107-8, 1167-8, 1207-8, 1260-1, 1307, 1353-4, 1395-6 N 14-D 26 '14
Equipment defects—controller blow-out coils. C. W. Squier. diag Elec Ry J 45:591-2 Mr 20 '15
Equipment defects—controller drums, shafts and handles. C. W. Squier. diag Elec Ry J 45:243-4 Ja 30 '15
Equipment defects—controller reverse drums and interlocking mechanism. C. W. Squier. diag Elec Ry J 45:382-3 F 20 '15
Equipment defects—hand-operated controllers—contacts, fingers, springs and bases. C. W. Squier. II diag Elec Ry J 45:102-3, 140-2 Ja 9-16 '15
Experiences with field control. H. M. Lloyd. Elec Ry J 45:191 J 31 '15
New cars of Seattle municipal railway. H. J. Kennedy. II diag Elec Ry J 44:1234-6 D 12 '14
New York municipal car—motors, control, conduit and collectors. II diag Elec Ry J 45:496-503 Mr 13 '15
Relay setting to maintain uniform acceleration. F. V. See. Elec Ry J 45:761 Ap 17 '15
Resawing old controller segments to smaller size. F. A. Miller. II diag Elec Ry J 46:236 Ag 7 '15
Sprague-General electric PC control. C. J. Axtell. II plan Gen Elec R 18:985-90 O '15

Cost of construction

Conditions affecting the success of main line electrification. W. S. Murray. II Am Inst E E Pro 34:1873-99; Tables. 1906-8; Discussion. 1913-32 Ag '15
Contact system of the Butte, Anaconda & Pacific railway. J. B. Cox. II diag map Am Inst E E Pro 34:1447-76 Ag '15; Same. Gen Elec R 18:842-59 Ag '15; Abstract. Elec Ry J 45:59-60 J 10 '15
Contact system of the Southern Pacific company Portland division. P. Lehenbaum. II diag map Am Inst E E Pro 34:1295-1308 Je '15; Abstract. Elec Ry J 45:57-8 J 10 '15
Overhead contact systems, construction and costs. El. J. Amberg. pls Am Inst E E Pro 34:1255-66 Je '15

Cost of equipment

Equipment cost data. Elec Ry J 45:427 F 27 '15

Cost of maintenance and operation

Conditions affecting the success of main line electrification. W. S. Murray. II Am Inst E E Pro 34:1873-99; Tables. 1900-4, 1909-11; Discussion. 1913-32 Ag '15
Construction, maintenance and cost of overhead contact systems; catenary construction. F. Zogbaum. Am Inst E E Pro 34:1267-81 Je '15

Electric railroads—Cost of maintenance—Cont.

- Contact system of the Butte, Anaconda & Pacific railway. J. B. Cox. 11 diags map Am Inst E E Pro 34:1447-16 Ag '15; Same. Gen Elec R 18:842-59 Ag '15; Abstract. Elec Ry J 46:59-60 J1 10 '15
- Economies in operating small cars. J. F. Layng. Gen Elec R 18:790-5 Ag '15
- Jitney problem; operating economies made possible by the use of light cars. J. C. Thirlwall. Gen Elec R 18:606-14 J1 '15
- Maintenance costs on the New York Central. E. B. Katté. Elec Ry J 45:580-1 Mr 20 '15
- Maintenance costs—reducing handling of equipment and departmental co-operation. H. A. Leonhauser. Elec Ry J 45:884-6 F 20 '15
- New Haven operating results. Elec Ry J 46:101-2 J1 17 '15
- New Haven operating results. W. S. Murray. Elec Ry J 45:229-31 Ja 30 '15
- Operating costs and shifts in service. F. W. Doolittle. Elec Ry J 46:400 S 4 '15
- Reducing the operating ratio. Elec Ry J 44:1840 D 19 '14
- St. Clair tunnel electrification operating data. Elec Ry J 46:1084-5 N 27 '15
- Third rail and trolley system of the West Jersey and seashore railroad. J. V. B. Duer. 11 diags Am Inst E E Pro 34:1237-53 Je '15; Abstract. Elec Ry J 46:58-9 J1 10 '15

Crossings

- Highway-crossing protection; abstract of report of block signal committee of the Illinois electric railways association. 11 Elec Ry J 45:174-9 Ja 23 '15
- Practical views of special work—the crossing. R. P. Williams. diags Elec Ry J 46:678-80 O 3 '15
- Shockless railroad crossing. 11 diags Elec Ry J 45:994-6 My 22 '15

Development work

- Relation of railways to agriculture. P. Shoup. Elec Ry J 46:807-9 O 16 '15

Employees

- B. R. T. mechanical department. Elec Ry J 46:826-7 O 16 '15
- Chicago elevated first-aid system. H. E. Fisher. 11 map Elec Ry J 46:430-4 S 11 '15
- Chicago elevated medical methods. H. E. Fisher. 11 Elec Ry J 45:1192-5 Je 26 '15
- Employment bureau. H. G. Winsor. Elec Ry J 46:9-10 J1 3 '15
- Examining the physique of Chicago elevated employees. H. E. Fisher. 11 Elec Ry J 46:216-19 Ag 7 '15
- Graded wage scale. W. J. Sherwood. Elec Ry J 46:912 O 30 '15
- Human element in electric railway operation. H. C. DeCamp. Elec Ry J 45:1157-8 Je 19 '15
- Instruction and handling of employees at Hampton, Va. 11 Elec Ry J 46:230-1 Ag 7 '15
- Joliet, Ill., arbitration decision rendered. Elec Ry J 46:1003 N 13 '15
- Maintaining proper relations between a railway and its car men. G. H. Harris. 11 Elec Ry J 46:581-2 S 18 '15
- Neglected principle of the safety first movement; proper selection of trainmen. C. J. Franklin. Elec Ry J 44:1244-6 D 5 '14
- Results obtained by instruction department, New York state railways, Rochester lines. G. Lawson. Elec Ry J 45:367-9 F 20 '15

See also Street railroads—Employees

Equipment and supplies

- Change of trolley wheel design and trolley lubrication. W. P. Jackson. diags Elec Ry J 46:449 S 11 '15
- Chemical department of the Illinois traction system. N. R. Beagle. Elec Ry J 45:423 F 27 '15
- Chemical engineering on the Bay State street railway. Elec Ry J 45:90-2 Ja 9 '15
- Discussion on depreciation of equipment. Elec Ry J 44:1335-7 D 19 '14
- Equipment defects—control apparatus and connections. C. W. Squier. Elec Ry J 44:1107-8, 1187-8, 1207-8, 1260-1, 1307, 1353-4, 1395-6 N 14-D 26 '14

- Equipment defects—controller blow-out coils. C. W. Squier. diags Elec Ry J 45:591-2, 636-7, 677-8 Mr 20 Ap 3 '15
- Equipment defects—controller drums, shafts and handles. C. W. Squier. diags Elec Ry J 45:242-4 Ja 30 '15
- Equipment defects—controller reverse drums and interlocking mechanism. C. W. Squier. diags Elec Ry J 45:382-3 F 20 '15
- Equipment defects—hand-operated controllers—contacts, fingers, springs and bases. C. W. Squier. 11 diags Elec Ry J 45:102-3, 140-2 Ja 9-16 '15
- Exhibits at Panama-Pacific exposition. Elec Ry J 45:519-20 Mr 13 '15
- Experience with malleable iron cross-arms on wooden poles. diags Elec Ry J 45:297 F 6 '15
- Flexible running track scraper. 11 Elec Ry J 46:961 N 6 '15
- Handling and sale of car wheels, rails and scrap iron. J. P. Alexander. Elec Ry J 45:245-6 Ja 30 '15
- Harps and wheels of high current-carrying capacity. 11 Elec Ry J 46:920 O 30 '15
- High-voltage direct-current railway equipments. Elec Ry J 45:18 Ja 2 '15
- Latest developments in railway equipment. W. R. Stinemetz. Elec Ry J 44:1296-7 D 12 '14
- Memphis maintenance co-operation. Elec Ry J 45:721-2 Ap 10 '15
- Modern crane trolley. 11 Elec Ry J 44:1400 D 26 '14; Ry Age (Mech ed) 89:97-8 F '15
- New trolley base and headlight. 11 Elec Ry J 45:1082 Je 5 '15
- New type of catenary hanger. W. H. Crevis-ton. 11 Elec Ry J 46:154 J1 24 '15
- Non-arching harp and oil-less bushing. 11 Elec Ry J 45:474 Mr 6 '15
- Portable car testing set. D. D. Ewing. plan Elec Ry J 46:152 J1 24 '15
- Portable lamp bank for equipment tests. F. L. Hinman. 11 Elec Ry J 45:513 Mr 13 '15
- Power reel for cars, trucks, etc. R. H. Parsons. diags Elec Ry J 45:894-5 My 8 '15
- Railway equipment for 5,000 volts direct current. C. Renshaw. 11 diags Elec R & W Elec'n 67:774-7 O 23 '15
- Railway sand experience. W. F. Carr. Elec Ry J 45:143 Ja 16 '15
- Recorder for passenger-mile earnings. 11 Elec Ry J 45:948-9 My 15 '15
- Report of the Engineering association committee on equipment. Elec Ry J 46:749-50 O 9 '15
- Roller-bearing trolley wheels. 11 Elec Ry J 45:996-7 My 22 '15
- Sale of scrap metals. B. J. Yungbluth. Elec Ry J 45:381 F 20 '15
- Sales of scrap metals. J. P. Alexander. Elec Ry J 45:192-3 Ja 23 '15
- Selection of railway equipment. J. F. Layng. Gen Elec R 18:126-31 F '15
- Single-circuit metal-arm construction. 11 Elec Ry J 46:774 O 9 '15
- Sioux City's self-lubricating trolley stand. C. M. Feist. diags Elec Ry J 46:365 Ag 28 '15
- Sleeving shrunk on worn armature shafts—rethreading pinion-end threads. diags Elec Ry J 45:720-1 Ap 10 '15
- Split self-lubricating trolley harp. C. M. Feist. 11 Elec Ry J 46:409 S 4 '15
- Straight-line hanger that stays on. 11 Elec Ry J 46:880 O 23 '15
- Tri-city railway bearing practice. J. Sutherland. 11 Elec Ry J 45:944-5 My 15 '15
- Trolley wheels of 10-in. diameter. F. A. Miller. 11 Elec Ry J 46:278-9 Ag 14 '15
- Trolley wire and pantograph shoe wear on Annapolis short line. D. H. Crouse. 11 Elec Ry J 46:638-9 S 25 '15
- Wheel press for pressing pantograph shoes and testing springs and hose. R. R. Potter. 11 Elec Ry J 44:1257-8 D 5 '14
- Where classifying scrap paid; Fort Wayne & Northern Indiana traction co.'s tests. A. W. Redderson. Elec Ry J 46:957-8 N 6 '15

See also Electric motors, Railway; Electric railroads—Cost of equipment

Fares

- Another Massachusetts fare increase; 6-cent fare to the Norfolk & Bristol street railway. map Elec Ry J 46:354-5 Ag 28 '15

Electric railroads—Fares—Continued

Bay State opens fare case. Elec Ry J 46:1006-7 N 13 '15
 Copper zones for Shore line electric railway. Elec Ry J 46:443-5 S 11 '15
 New Bedford & Onset fare hearing. Elec Ry J 45:959 My 15 '15
 Six-cent fare granted to the New Bedford & Onset street railway. map Elec Ry J 46:628-31 S 25 '15

Finance

Electric railway earnings. Elec Ry J 46:106 J1 17 '15
 Electric railway statistics. Elec Ry J 45:183-5 Ja 23 '15
 Northern electric plan completed. Elec Ry J 46:886 O 23 '15
 Receiverships and foreclosure sales in 1914. Elec Ry J 45:19 Ja 2 '15
See also Electric railroads—Accounting; also New York railways

Freight

Businesslike methods in handling freight by electric railroads. J. McMillan. II Elec Ry J 46:482-7 S 18 '15
 Car-load freight on small lines. J. S. Clark. Elec Ry J 45:1114 Je 12 '15
 Electric freight service at Bangor. II Elec Ry J 44:1328-30 D 19 '14
 Electric railway freight in Maine. C. H. Nottage. II Elec Ry J 45:1213-14 Je 26 '15
 Locomotive and trail cars in Detroit United freight service. C. L. Keller. II Elec Ry J 45:848-9 My 1 '15
 Package freight on interurban cars. J. F. Stratton. Elec Ry J 46:1078-9 N 27 '15
 Rapid handling of auto bodies on the Detroit United railway. N. Rumney. II Elec Ry J 44:1333 D 19 '14
 Report of the A. E. R. A. committee on express and freight traffic. Elec Ry J 46:762-4 O 9 '15

Law

Electric railway legal decisions. Elec Ry J 46:196-8 J1 31 '15

Maintenance and repair

Car maintenance on a definite cost basis. K. C. Schluss. Elec Ry J 46:568-9 S 18 '15
 Charges for repairs to foreign equipment. Elec Ry J 46:1078-80 N 27 '15
 Chicago elevated shop practice. II diag Elec Ry J 45:551-5 Mr 20 '15
 Deferred maintenance. C. H. Fuller. Elec Ry J 45:791-3 Ap 24 '15
 Departmental work planning system at Portland, Ore. F. P. Maize. II Elec Ry J 46:565-7 S 18 '15
 From a.c. to d.c. in the night. II diag Elec Ry J 45:542-50 Mr 20 '15
 Graphics in maintenance work. Elec Ry J 46:947-51 N 6 '15
 Maintenance of a 1200-volt catenary on Southern Pacific lines. J. B. Nichols. II Elec Ry J 46:542-3 S 18 '15
 Maintenance of 1500-volt d. c. cars by the Southern Pacific company. E. Sears. II Elec Ry J 46:551-4 S 18 '15
 Maintenance of 1200-volt d. c. cars by the Southern Pacific company. R. E. Hewitt. II Elec Ry J 46:546-8 S 18 '15
 Maintenance of 1200-volt d. c. cars by the Oregon electric railway. D. I. Clough. II Elec Ry J 46:555-6 S 18 '15
 Memphis maintenance co-operation. Elec Ry J 45:721-2 Ap 10 '15
 Signal maintenance methods on the New York, Westchester & Boston Ry. II Elec Ry J 45:561-5 Mr 20 '15
 Signal maintenance on the 1200-volt Oregon electric railway. E. R. Cunningham. II Elec Ry J 46:557-8 S 18 '15
 Way department rule book to promote standard practice. Elec Ry J 45:89 Ja 9 '15
 Way records on cost per section basis. F. W. Eulett. Elec Ry J 45:669-71 Ap 3 '15
 What constitutes good and sufficient maintenance? J. P. Barnes. Elec Ry J 45:467 Mr 6 '15
See also Cars—Repair; Electric railroads—Cost of maintenance; Electric railroads—Equipment and supplies; Electric railroads—Shops

Management

Bay State way organization. Elec Ry J 46:229 Ag 7 '15
 Car maintenance on the San Francisco-Oakland terminal railways. G. St. Pierre. II diag Elec Ry J 46:527-30 S 18 '15
 Graphs, charts and statistics as aids to administration. E. C. Stothart. Elec Ry J 46:665-7 O 2 '15
 How Bay State railway maintains 2751 vehicles with 680 men. Elec Ry J 46:671-2 O 2 '15
 Lancaster's experience with time-inspection system. R. B. Hull. Elec Ry J 46:1034-5 N 20 '15
 Maintenance costs—reducing handling of equipment and departmental co-operation. H. A. Leonhauser. Elec Ry J 45:384-6 F 20 '15
 Methods of increasing revenue. G. K. Jeffries. Elec Ry J 46:1039 N 20 '15
 99.2 per cent of Westchester trains are on time. Elec Ry J 46:190 J1 31 '15
 One-man car. J. M. Bosbury. Elec Ry J 45:627 Mr 27 '15
 Power station organization on Bay State street railway. Elec Ry J 46:911 O 30 '15
 Watch standards. A. J. Boardman. Elec Ry J 46:874-5 O 23 '15
See also Electric railroads—Coasting; Electric railroads—Medical departments; Electric railroads—Records; Street railroads—Management

Medical departments

Chicago elevated medical methods. H. E. Fisher. II map Elec Ry J 46:1192-5; 46:216-18, 430-4 Je 26, Ag 7, S 11 '15

Meters

Ampere-hour meters on the Annapolis short line. Elec Ry J 45:722-3 Ap 10 '15
 Meter results on Chicago & Milwaukee line. II diag Elec Ry J 45:973-6 My 22 '15
 Saving power by watt-meter records. Elec Ry J 46:822-3 O 16 '15

See also Electric railroads—Coasting**Power**

Direct-current 5,000-volt railway operation. diag Power 42:652 N 9 '15
 Economies in electric railway power equipment. Elec R & W Elec'n 66:216 Ja 30 '15
 Economies in operating small cars. J. F. Layng. Elec Ry J 45:979-80 My 22 '15
 Economies in power consumption in electric railways. N. W. Storer. W Soc E J 20:205-22 Mr '15; Same cond. (Saving energy in car propulsion.) Elec Ry J 45:286-9 F 6 '15; Discussion. W Soc E J 20:223-31 Mr '15
 First 5000-volt d. c. railway. J. G. Pertsch. Sibley J 30:72 N '15
 5000-volt direct-current railway. diag map Engineer 120:440-1 N 5 '15
 5000-volt experimental line of the Michigan United traction company. C. Renshaw. II diag map Ry R 57:533-6 O 23 '15
 Inertia effect of moving electric trains. J. McAnnix. Elec Ry J 45:714-15 Ap 10 '15
 Mountain railway electrification. F. Castiglioni. Elec Ry J 46:358-60 O 23 '15
 New York Interborough power plant enlargement. II diag Elec Ry J 45:744-9 Ap 17 '15; Same. Elec W 65:975-9 Ap 17 '15
 Operating with 5000-volt direct current. N. W. Storer. II diag map Elec Ry J 46:660-3 O 2 '15
 Power consumption of railway motors. H. L. Andrews and J. C. Thirliwall. II Gen Elec R 18:944-51 O '15
 Power dispatching. G. L. Fitch. Elec Ry J 46:470-1 Mr 6 '15
 Power distribution on Penn. R. R. at Philadelphia. II plan Power 42:686-6 N 16 '15
 Power economy expert obtains results for the elevated railroads of Chicago. Elec Ry J 46:391 S 4 '15
 Power supply of the public service railway. Elec Ry J 45:1023-3 My 29 '15
 Promoting service. J. G. Montgomery. Elec R & W Elec'n 66:169 Ja 23 '15
 Railway power rates in Chicago. Elec Ry J 46:138 J1 24 '15

Electric railroads—Power—Continued

- Regenerating electric ore railroad. Eng M 49: 121-2 Ap '15
 Relation between car operation and power consumption. J. F. Layng. Gen Elec R 18: 973-8 O '15
 Resale of energy by customer to second central station. Elec W 66:704-5 S 25 '15
 Small car versus the large car. D. C. Hershberger. Elec Ry J 46:394-5 S 4 '15
 Storage batteries for handling peak loads. E. Brown. Power 41:470-1 Ap 6 '15
 System of the Columbus railway and light co. II Power 42:339-41 S 7 '15

See also Electric plants—Central stations; Electric railroads—Coasting; Electric railroads—Meters; Electric railroads—Substations

Public relations

- Code of principles. O. T. Crosby. Elec Ry J 45:370-3 F 20 '15
 Code of principles. T. S. Williams. Elec Ry J 45:220-2. Discussion. G. E. Tripp; M. C. Brush. 45:214-16 Ja 30 '15
 Code of principles and publicity. C. L. S. Tingley. Elec Ry J 44:1845-6 D 19 '14
 Electric railways and the public. E. R. Johnson. Elec Ry J 44:1297-8 D 12 '14
 How a railway helps the farmer to produce bigger and better crops. H. A. Hinshaw. Elec Ry J 46:569 S 18 '15
 Poisoning the wells: objection to the Code of principles by the "New republic." Elec Ry J 44:1230 D 5 '14
 Relation of railways to agriculture. P. Shoup. Elec Ry J 46:807-9 O 16 '15
 Utilizing the county fair in publicity work. W. H. Boyce. II Elec Ry J 46:945-6 N 6 '15
See also Electric railroads and state

Records

- Car record and trouble board combined. Elec Ry J 46:878 O 23 '15
 Card records of Los Angeles track work. G. E. Campbell. Elec Ry J 46:407-8 S 4 '15
 Coasting; Denver tramway gave experience with coasting clocks, showing resulting energy economy. H. P. Flegg. Elec Ry J 45:705-6 Ap 10 '15
 Coasting recorders in New York. II Elec Ry J 45:572-5 Mr 20 '15
 Coasting records of Northern Texas traction company. II Elec Ry J 45:1198-1200 Je 26 '15
 Daily work-train report. T. W. Blinn. Elec Ry J 46:636 S 25 '15
 Following up watt-hour meter records at El Paso. II Elec Ry J 46:12-13 Jl 3 '15
 Graphics in maintenance work. Elec Ry J 46:947-51 N 6 '15
 Indexing car equipment data. H. S. Cooper. Elec Ry J 46:1040-1 N 20 '15
 Indexing car equipment data. N. Litchfield. Elec Ry J 46:877-8 O 2 '15
 Meter results on Chicago & Milwaukee line. II diag Elec Ry J 45:973-6 My 22 '15
 Meters and men. C. H. Koehler. Elec Ry J 45:633 Mr 27 '15
 Reduction in power cost effected by the use of coasting recorders. W. R. Alberger. Elec Ry J 46:520-1 S 18 '15
 Scientific coasting at Oakland. II Elec Ry J 46:268-71 Ag 14 '15
 Use of coasting recorders results in economies at Vancouver. W. G. Murrin. II Elec Ry J 46:578-4 S 18 '15
 Way department report forms. Elec Ry J 46:396-9 S 4 '15

See also Electric railroads—Meters

Rolling stock

- All-steel passenger cars for the Pacific electric railway. F. E. Small. II diag Elec Ry J 46:489-92 S 18 '15
 Car design from a service standpoint. II diag Elec Ry J 46:578-80 S 18 '15
 Electric rolling stock ordered in 1914: a tabulation showing the number, type, carbody length and character of construction. Elec Ry J 45:156-18 Ja 2 '15

See also Cars; Street cars

Runaway cars

- Effective stop for runaway cars. II diag Elec Ry J 45:706-7 Ap 10 '15

Safety devices and measures

- Block to protect switch blades of type K controllers. R. H. Parsons. diag Elec Ry J 45:388 F 20 '15
 Brady medal award. Elec Ry J 45:281-2 F 8 '15
 Change in car-wiring code recommended. Elec Ry J 45:285 F 6 '15
 Effective stop for runaway cars. II diag Elec Ry J 46:706-7 Ap 10 '15
 Effects of remote feeder taps on schedule speed. N. Stahl. Elec Ry J 45:991-2 My 22 '15
 Feeder-tap protection for d.c. apparatus and a few suggestions regarding the care of commutators. C. H. Smith. Elec Ry J 45:627-8 Mr 27 '15
 Reducing accidents in the Milwaukee shops. II Elec Ry J 45:756 Ap 17 '15
 Report of the committee of A. E. R. A. on lightning protection. Elec Ry J 46:746-7 O 9 '15
 Results of safety work. F. K. George. Elec Ry J 45:794 Ap 24 '15
 Safety first movement. II Elec Ry J 45:34-46 Ja 2 '15
 Safety first movement on the Chicago, Ottawa & Peoria railway. W. F. Carr. Elec Ry J 44:1251 D 5 '14
 Safety-first organization chart. Elec Ry J 46:448 S 11 '15
 Safety of trains on the Chicago elevated. II Elec Ry J 46:302-5 Ag 21 '15
See also Electric railroads—Signals; Street railroads—Safety devices and measures; Subways—Safety devices and measures

Shops

- Chicago elevated shop practice. II diag Elec Ry J 45:551-5 Mr 20 '15
 Cleveland builds four operating stations. II plans Elec Ry J 46:356-61 Ag 28 '15
 Cleveland railway occupies new repair shops. II diag plan Elec Ry J 46:1022-30 N 20 '15
 Cleveland railway's new repair shops. II plans Elec Ry J 45:168-73 Ja 23 '15
 Design, construction and detailed labor costs of car shops for Omaha & Council Bluffs street railway co., Omaha, Neb. W. L. Fulton. diag plans Eng & Contr 44:264-6 O 6 '15
 Mesabi railway's new repair shops and office building. G. Sargl. plans Elec Ry J 46:312-13 Ag 21 '15
 Monroe (Tex). maintenance shops. II plan Elec Ry J 46:176-8 Jl 31 '15
 New carhouse and shops at Holyoke. II plan Elec Ry J 45:980-1 My 15 '15
 Norfolk & Western electrification. map Elec Ry J 45:1069 Je 5 '15
 Oil bath tank. R. H. Parsons. diag Elec Ry J 45:65 Ja 2 '15
 Reducing accidents in the Milwaukee shops. II Elec Ry J 45:756 Ap 17 '15
 Repair-shop procedure at Milwaukee. II Elec Ry J 45:786-90 Ap 24 '15
 Shop kinks at Holyoke. II Elec Ry J 45:899 My 8 '15
 Shop notes from Hampton, Va. II Elec Ry J 46:50-2 Jl 10 '15
 Special work shop for electric railways. S. Gausmann. plan Elec Ry J 45:992-3 My 22 '15
 Springfield shops and carhouse. II plans Elec Ry J 45:556-60 Mr 20 '15
 Tri-city railway trouble board. J. Sutherland. II Elec Ry J 45:1078 Je 5 '15

Signals

- Automatic block signals on an interurban railway. II diag Eng N 74:150-1 Jl 22 '15
 Automatic signals on Norfolk & Western electrified line. II Ry Age 59:21-2 Jl 2 '15
 Highway-crossing protection; abstract of report of block signal committee of the Illinois electric railways association. II Elec Ry J 45:174-9 Ja 23 '15
 Highway crossing signal with indicators. II Elec Ry J 46:1046-7 N 20 '15
 Highway-crossing protection by trolley contact control. II Elec Ry J 44:1857 D 19 '14
 Illinois traction system signaling. J. Leisenring. II plan Elec Ry J 45:408-10 F 27 '15
 Interlocking installation on Pacific electric. II Elec Ry J 45:946-7 My 15 '15

Electric railroads—Signals—Continued

- Joint report on block signals for electric railways. Elec Ry J 46:760-1 O 9 '15
- Lamp signals for day service on electric railways. II Eng N 72:1260-1 D 24 '14
- List of signals installed by electric railways during 1914. Elec Ry J 45:18 Ja 2 '15
- Original application of signals for city service. diag Elec Ry J 45:1127 Je 12 '15
- Railway signal association winter meeting. Elec Ry J 45:532-3 Mr 20 '15
- Signal, bonding and contact rail notes on the Northwestern Pacific. F. T. Vanatta. II Elec Ry J 46:539-40 S 18 '15
- Signal maintenance methods on the New York, Westchester & Boston Ry. II Elec Ry J 45:561-5 Mr 20 '15
- Signal maintenance on the 1200-volt Oregon electric railway. H. R. Cunningham. II Elec Ry J 46:557-8 S 18 '15
- Signal operation on the Oakland, Antioch & Eastern railway. F. A. Miller. II Elec Ry J 46:536-8 S 18 '15
- Signals for new Brooklyn subways. Ry Age 57:1191 D 25 '14
- Special application of car-spacing signals. A. P. Way. II Elec Ry J 46:368-9 Ag 28 '15
- Speed-control for the Brooklyn subway. Elec Ry J 45:72 Ja 2 '15
- Standard aspects for contact signals. H. R. Stadelman. Elec Ry J 44:1354-5 D 19 '14
- Traffic control at electric railway crossings. II Munic Eng 48:178-80 Mr '15

Snow protection and removal

- Removing snow from under-running third-rail. F. L. Hinman. diags Elec Ry J 45:469 Mr 6 '15

Statistics

- Census report on electric railways. Elec Ry J 45:96-7, 130-2 Ja 9-16 '15
- Electric railway statistics. Elec Ry J 45:506-7 Mr 13 '15
- Graphs, charts and statistics as aids to administration. E. C. Stothart. Elec Ry J 46:665-7 O 2 '15

Substations

- Automatic railway substations. C. M. Davis. Elec Ry J 46:871 O 23 '15
- Automatic railway substations. C. M. Davis. Gen Elec R 13:976-8 O '15; Excerpt. Elec Ry J 46:772-3 O 9 '15
- Automatic substations. H: Taylor. Elec Ry J 46:1076-6 N 27 '15
- Automatically controlled substations with particular reference to their application to interurban electric railways. W. W. Allen and E: Taylor. II plan Am Inst E E Pro 34:2159-73 S '15; Abstract. Elec Ry J 46:533-6 S 18 '15
- Economics of electric railway distribution. H. F. Parshall. Elec Ry J 44:1250 D 5 '14; Same (Substation standardization). Elec R & W Elec'n 65:1147 D 12 '14
- High-voltage direct-current substation machinery. E. S. Johnson. Gen Elec R 13:641-3 J1 '15
- Operation of a 1200-volt direct-current distribution system. J. Johansen. II Elec Ry J 46:549-50 S 18 '15
- Pennsylvania electrification at Philadelphia. II plan Elec W 66:1074-6 N 13 '15
- Portable substation at Pittsburgh. II Elec Ry J 45:1039-40 My 29 '15
- Rating of railway substation machinery. W: L. Del Mar. Elec Ry J 46:21 J1 3 '15
- Semi-outdoor portable substation for the Berkshire street railway. II Elec R & W Elec'n 66:92-4 Ja 9 '15; Elec Ry J 45:56 Ja 2 '15; Eng N 72:1198 D 17 '14
- Semi-outdoor portable substation for the Berkshire street railway. W. D. Bearce. II Gen Elec R 18:44-7 Ja '15
- Substation spacing in a. c. and d. c. systems. W: S. Murray. Elec Ry J 44:1345 D 19 '14

Switches, frogs, etc.

- Practical views of special work—the tongue switch. R. P. Williams. diags Elec Ry J 46:339-41 S 26 '15

Taxation

- Report of the committee of A. E. R. A. on taxation. Elec Ry J 46:733-5 O 9 '15

Terminology

- Contact system nomenclature. E. H. McHenry. Elec Ry J 46:275 Ag 14 '15
- New technical terms in heavy electric traction. Elec Ry J 46:214-15 Ag 7 '15

Track

- Corrugation of rails in electric railway service. Ry Age 58:1449 Je 18 '15
- Rail-laying outfit on the Kankakee & Urbana traction line. T. W. Shelton. II Elec Ry J 45:242 Ja 30 '15
- Signal, bonding and contact rail notes on the Northwestern Pacific. F. T. Vanatta. II Elec Ry J 46:539-41 S 18 '15
- Steel tie construction in electrically-warmed concrete. J. M. Bamberger. II diag Elec Ry J 45:189-90 Ja 23 '15
- Tests show satisfactory return-circuit conditions in Providence. R. I. Elec Ry J 46:326-6 O 16 '15
- Track joining and bonding. E. C. Price. Elec Ry J 45:1156-7 Je 19 '15
- See also Electric railroads—Switches, frogs, etc.; Street railroads—Track

Valuation

- Foundation principles of valuation. B. J. Arnold. Elec Ry J 46:713-19, 803-6 O 9-16 '15; Discussion. 46:732-3 O 9 '15
- See also Public service corporations—Valuation; Street railroads—Valuation

Wiring

- Change in car-wiring code recommended. Elec Ry J 45:285 F 6 '15
- Contact conductors and collectors for electric railways. C. J. Hixson. II diags Am Inst E E Pro 34:1477-90 Ag '15; Abstract. Elec Ry J 46:60-1 J1 10 '15
- Effects of remote feeder taps on schedule speed. N: Stahl. Elec Ry J 45:991-2 My 22 '15
- Feeder-tap protection for d.c. apparatus and a few suggestions regarding the care of commutators. C: H. Smith. Elec Ry J 45:827-8 Mr 27 '15
- Location of trolley wire on curves. S. L. Foster. diags Elec Ry J 45:62-4, 105, 142-3, 191, 244 Ja 2-30 '15
- Sectionalizing of electric railway feeders at San Diego. H. MacNutt. plan Elec Ry J 46:496-9 S 18 '15
- Trolley wire on double-leaf bascule bridge. S. L. Foster. diags Elec Ry J 46:1042-4 N 20 '15
- Trolley wires on curves. plan Colliery 36:33 Ag '15
- Unusual feed-in clamp. S. L. Foster. diags Elec Ry J 46:322 Ag 21 '15

Alsace

- Features of electric railway in Alsace. Elec Ry J 46:1091 N 27 '15

Austria

- Vienna-Pressburg single-phase railway. E. E. Seefehner. II Elec Ry J 45:828-31, My 1 '15

California

- Building up local pleasure travel to points in the East Bay cities. J. H. Brown. II Elec Ry J 46:533-5 S 18 '15
- Electric railway paradise. P. Shoup. II map Elec Ry J 46:475-80 S 18 '15
- 15-cycle single phase railway in California. II Engineer 120:2-3 J1 2 '15
- Handling traffic to the Panama-California exposition at San Diego. E. M. Warner. II Elec Ry J 46:508-9 S 18 '15
- Notes on Southern Pacific electric service in the Bay cities. J. C. McPherson. II Elec Ry J 46:544-5 S 18 '15
- Operation of the Pacific electric railway. II map Ry Age 59:225-9 Ag 6 '15

Canada

- 1500-volt direct-current electrification of the Ontario municipal railway. G. H. Hill. Gen Elec R 18:10-11 Ja '15
- Hamilton electric incline railway. II Elec Ry J 46:115-16 J1 17 '15

Electric railroads—Continued**Connecticut**

Connecticut commission report. Elec Ry J 44: 1401-2 D 26 '14

Germany

German 1500-volt d.c. line with regeneration and battery. Elec Ry J 45:274 F 6 '15

Great Britain

British managers discuss conditions. Elec Ry J 46:224 Ag 7 '15

L. C. C. tramways. Engineer 120:106-7 JI 30 '15

Tramways in the United Kingdom; operating results for the year 1912-1913. A. J. Lawson. Elec Ry J 45:929 My 15 '15

Working of tramways in the United Kingdom. A. J. Lawson. Engineer 118:577-8, 600-1 D 18-25 '14

Idaho

1500-volt interstate interurban railway. II map Elec Ry J 46:1073-4 N 27 '15

Indiana

Address. T: Duncan. Elec Ry J 45:456-8 Mr 6 '15

Electric railway taxation in Indiana. Elec Ry J 45:53 Ja 2 '15

Maine

Portland & Lewiston interurban. II map Elec Ry J 46:618-21 S 25 '15

Spain

Electric traction in Spain. W. Reinhart. Elec W 66:350 Ag 14 '15

Switzerland

Looping the loop in the Alps. J. F. Springer. II Sci Am 111:504-5 D 19 '14

United States

Development of the electric railway. J. H. McGraw. Elec Ry J 46:723-4 O 9 '15

Electric railway track built in 1914. Elec Ry J 45:14-15 Ja 2 '15

Year in the electrical industry. Elec R & W Elec'n 66:8 Ja 2 '15

Utah

1500-volt interstate interurban railway. II map Elec Ry J 46:1073-4 N 27 '15

Salt Lake & Utah railroad. II map Elec Ry J 45:54-5 Ja 2 '15

Virginia

Traffic notes from Hampton, Va. II Elec Ry J 46:317-18 Ag 21 '15

Electric railroads and state

Address. T: Duncan. Elec Ry J 45:456-8 Mr 6 '15

Argument on authority of Interstate commerce commission to require reports of accidents and other statistics from urban railways. J: T. Beasley. Elec Ry J 44:1339-90 D 26 '14

Code of principles. O. T. Crosby. Elec Ry J 45:270-3 F 20 '15

Electric railway association, American. See American electric railway association

Electric railway association, Central. See Central electric railway association

Electric railway journal

Results of a straw ballot of readers' preferences. Elec Ry J 45:52-3 Ja 2 '15

Electric railway mail service

Compensation for carrying United States mail; A. E. R. A. committee report. Elec Ry J 46:727-8 O 9 '15

Electric railway mail statistics from report of second assistant postmaster general for year ended June 30, 1914. Elec Ry J 44:1337 D 26 '14

Electric rates. See Electric power—Rates**Electric resistance**

Adjustments of the Thomson bridge in the measurement of very low resistances. F. Wenner and E. Weibel. U S Bur Stand Bul 11:65-8 N 15 '14

Calibration of current transformers by means of mutual inductance. C. Fortescue. diags pls Am Inst E E Pro 34:1199-1215 Je '15

Carbon as a heating element in appliances. C. W. Piper. Elec W 66:184-5 JI 17 '15

Comparisons of electric resistivities at high temperatures. C. Hering. Met & Chem Eng 13:23-8 Ja '15

Court of appeals decision in nickel-chromium resistor suit. Met & Chem Eng 13:414-15 JI '15

Distortion of alternating current wave caused by cyclic variation in resistance. F: Bedell and E. C. Mayer. diags Am Inst E E Pro 34:177-86 F '15; Discussion. 34:2534-9 O '15

Effective resistance and inductance of iron and bimetallic wires. J: M. Miller. diags U S Bur Stand Bul 12:207-67 N 8 '15

Electrical resistance and critical ranges of pure iron. G. K. Burgess and I. N. Kellberg. U S Bur Stand Bul 11:457-70 My 10 '15

Experimental researches on skin effect in conductors. A. E. Kennelly, F. A. Laws and P. H. Pierce. bibliog II diags Am Inst E E Pro 34:1749-1814 Ag '15

Insulating properties of solid dielectrics. H. L. Curtis. diags U S Bur Stand Bul 11:359-420 My 10 '15; Excerpt (Volume resistivity table) Elec R & W Elec'n 66:171 Ja 23 '15

Method for measuring earth resistivity. F. Wenner. J Fr Inst 180:373-5 S '15; Same. Elec R & W Elec'n 67:980 N 27 '15

Methods of measuring the inductances of low-resistance standards. F. Wenner, E. Weibel and F. B. Silsbee. diags U S Bur Stand Bul 12:11-21 O 28 '15

Proper construction of earth connections. G. H. Rettew. Gen Elec R 18:904-7 S '15; Abstract. Engineer 120:462 N 12 '15

Receiving-end impedance of a conducting line loaded at both ends. A. E. Kennelly. Elec W 66:183-4 JI 24 '15

Skin effect in bimetallic wires. J: M. Miller. Elec W 65:1612-13 Je 19 '15

Temperature coefficient formulae for copper. J: D. Ball. Gen Elec R 18:669 JI '15

Volume resistivity and surface resistivity of insulating materials. H. L. Curtis. diags Gen Elec R 18:996-1001 O '15

Wheatstone bridge for resistance thermometry. C. W. Waldner and others. II diags U S Bur Stand Bul 11:571-90 My 27 '15

See also Electric conductivity; Electric measurement; Electric testing; Insulation; Rheostats

Electric service, Rural

Analysis of central-station practice in Wisconsin regarding rural service. Elec R & W Elec'n 66:237-9 F 6 '15

Economics of the rural-customer problem. II Elec W 65:176 Ja 16 '15

Meter practice on rural electric-service lines. II Elec W 64:1110 D 5 '14

Electric service companies

Advancing the commercial purpose. Elec W 65:1640 Je 19 '15

Business hints for dealer and contractor. G. D. Crain, jr. Elec R & W Elec'n 66:1059-60 Je 5 '15

Central-station business improves; statistics. Elec W 65:981-3 Ap 17 '15

Central-station development of Portland, Maine. II map Elec W 65:519-22 F 27 '15

Central-station returns for October. Elec W 65:92-3 Ja 9 '15

Colorado electric light, power and railway association 13th annual convention. Elec W 66:792-3 O 9 '15

Commercial practices in California. H. B. Pitts. II Elec W 65:1409-12 My 29 '15

Demonstration of a power sale; abstract. C. H. Stevens. Elec W 65:1525-6 Je 12 '15

Electric developments on the Pacific coast. II Elec W 65:1337-38 My 29 '15

How the use of appliances increases the residence non-lighting load. Elec W 66:980 O 30 '15

Irrigating the land of little rain. S. M. Kennedy. II diags Elec W 65:1471-4 Je 5 '15

Irrigation in the Wenatchee valley. A. Gunn. II Elec W 65:1560-3 Je 12 '15

Irrigation pumping in the coast states. II map Elec W 65:1399-1408 My 29 '15

Electric service companies—Continued

Middle west utilities: companies register a 7.8 per cent growth in income and a 9.5 per cent growth in output. Elec W 64:1174 D 12 '14

N. E. L. A. New England section 7th annual convention. Elec R & W Elec'n 67:577-83 S 25 '15

Northwest electric light and power association 8th annual convention, Portland, Ore. Elec R & W Elec'n 67:523-34 S 18 '15

Northwest electric light and power association's 8th annual convention, Portland, Ore. Elec W 66:567-9 S 11 '15

Ohio central-station men meet in Cleveland. Elec R & W Elec'n 66:192-3 Ja 30 '15

Ohio electric light association convention at Cedar Point. Elec W 66:219-20 JI 24 '15

Ohio new-business men hold profitable convention. Elec R & W Elec'n 67:967-8 N 27 '15

Pacific gas & electric company. Elec W 65:1689-76 Je 26 '15

Pennsylvania electric association 8th annual convention. Elec R & W Elec'n 67:524-3 S 18 '15

Pennsylvania electric association 8th annual convention. Elec W 66:661-2 S 18 '15

Relations between contractor and central station: abstract. A. E. Loeb. Elec W 66:662 S 18 '15

Small consumer—a problem. A. D. Dudley. Gen Elec R 18:657-8 JI '15; Abstract and discussion. Elec W 65:1324-5 My 22 '15

Stability in the central-station industry. F. Nicholas. Elec W 66:672-4 S 11 '15

Successful meeting of Ohio new-business men. Elec R & W Elec'n 66:580-1 Mr 27 '15

Why central stations do not get all the big power business; symposium. Elec W 66:759-60 O 2 '15

Year of sales at Providence, R. I. II Elec W 65:1311-15 My 22 '15

See also Electric plants—Central stations; Electric service, Rural; Electric vehicles and the central station

Accounting

Accounting methods; discussed by N. E. L. A. Elec W 65:1531-2 Je 12 '15

Billing and collecting systems of small companies. Elec R & W Elec'n 67:184-6 JI 31 '15

Electric consumer's ledger sheets. Elec W 65:304 Ja 30 '15

Electric light and power accounting. O. A. Small. Elec Ry J 46:1113 Je 12 '15

N. E. L. A. accounting section. H. M. Edwards. Elec W 65:498-9 R 20 '15

N. E. L. A. accounting section. L. M. Wallace. Elec W 65:644 Mr 13 '15

Small-customer question. H. E. Eisenmenger. Elec R & W Elec'n 67:657-62 O 9 '15

Small-town distribution and management cost. E. A. Wright. Elec W 65:338-41 F 6 '15

System of accounting for central-station companies. Elec R & W Elec'n 67:223 Ag 7 '15

Advertising

Advertising electricity to manufacturers. Elec W 65:547-9 F 27 '15

Attracting the good will of 2,500,000 people. Elec W 66:1024-5 N 6 '15

Campaigning past the saturation point. Elec W 66:814-15 O 9 '15

Carrying the display room to the customer. II Elec W 66:28-30 JI 3 '15

Cheap-residence wiring campaign of the Lehigh valley light & power company. Elec W 65:425-6 F 13 '15

Commercial lighting campaign in Salt Lake City. II Elec R & W Elec'n 66:417-18 Mr 6 '15

Efficiency and comfort in the home: views of model apartments. Elec W 66:207 JI 24 '15

Electric range advertisement that sold 22 ranges. Elec R & W Elec'n 67:971 N 27 '15

Electrical Fourth in your town. II Elec W 65:1696-7 Je 26 '15

Flatiron sold every seven seconds. Elec W 66:200-1 JI 24 '15

Getting ready for moving day—enlisting the public's help. Elec W 66:649 S 18 '15

House electric at Rockford, Ill. II Elec R & W Elec'n 66:880-1 Ap 10 '15

How 700 houses were wired in one year at Topeka, Kan. Elec W 65:117-18 Ja 9 '15

Kansas City, Mo. keeps up load-building. Elec R & W Elec'n 65:1309-10 D 26 '14

N. E. L. A. committee report on merchandising and recent developments in electrical appliances. Elec W 65:1522-3 Je 12 '15; Elec R & W Elec'n 66:1109 Je 12 '15

Obtaining the good will of the public. Elec R & W Elec'n 67:146-7 JI 24 '15

Old-house-wiring campaign. E. R. Davenport. Elec W 65:388-9 F 13 '15

Practical policy of local co-operation and the story of a six-day appliance sale in Dayton, Ohio. Elec W 66:645-6 S 18 '15

Premium plan that wired 250 houses in Minneapolis. Elec W 66:417-19 Ag 21 '15

Public-school boy as a pathfinder. Elec W 66:95-6 JI 10 '15

Results of fall housewiring campaign at Kokomo, Ind. II Elec W 64:1208 D 19 '14

Selling in the irrigation country. II Elec W 65:1214-17 My 29 '15

Service panel introduces electricity in many homes. plan Elec W 65:733 Mr 20 '15

Shall the central station sell appliances? J. H. Moseley. Elec R & W Elec'n 67:466-9 S 11 '15

Smashing iron slide slogan of Rome (N. Y.) sales campaign. II Elec W 66:643 S 18 '15

Stage craft in the electric shop. M. J. Russell. II Elec W 65:1693-5 Je 26 '15

Starting Christmas sales with prosperity week. II Elec W 66:1192-4 N 27 '15

Telling the story of public service to the public. Elec W 66:1205 N 27 '15

Topeka house-wiring campaign shows immediate profit. Elec W 66:1195-6 N 27 '15

Typical house and the testimonial: advertising campaign at Louisville, Ky. Elec W 66:305-7 Ag 7 '15

Unique type of central-station newspaper advertising. Elec R & W Elec'n 67:333 N 6 '15

Value of advertising. A. Williams. II Elec W 65:1001-2 Ap 17 '15

What advertising has done for the Denver company. Elec R & W Elec'n 66:722-3 Ap 17 '15

White way as a business getter for the central station. II Elec W 65:1697 Je 26 '15

Window suggestions for Thanksgiving and electrical prosperity week. II Elec W 66:1097 N 18 '15

Winning old houses by special inducement. Elec W 66:145-6 JI 17 '15

See also Electrical prosperity week

Finance

Application of the diversity-factor; abstract. H. B. Gear. Elec W 65:1515-16 Je 12 '15

Boston Edison company's steady growth. Elec R & W Elec'n 67:609 S 18 '15

Continued gain in light and power industry. Elec W 66:456-8 Ag 23 '15

Electrical securities and the central-station industry in 1914—prospects for 1915. J. M. C. Hampson. Elec R & W Elec'n 66:19-20 Ja 2 '15

Financial needs of the electrical industry. F. A. Vanderlip. Elec W 66:684-5 S 25 '15

Kansas City plan filed. Elec Ry J 46:830-1 Ag 21 '15

Pacific gas and electric company's 9th annual report. Elec W 66:427-8 Ag 21 '15

Salosmen's ideas on minimum monthly bills. II Elec W 66:147 JI 17 '15

Southern California Edison company annual report, 1914. Elec W 65:1032 Ap 24 '15

See also Electric service companies—Accounting; Electric service companies—Valuation of property

Franchises

Agreement reached in important utilities consolidation. Elec R & W Elec'n 66:4 Ja 2 '15

Law

Liability of electric company using joint poles. Elec W 64:1154 D 12 '14

Management

Applying the show-me policy in motor-service sales. II Elec W 65:1080 Ap 24 '15

Campaign to reduce delinquency: a five-year record by the American gas & electric company's properties. Elec W 65:998-9 Ap 17 '15

Electric service companies—Management—Cont.

- Card index increases efficiency of new-business department. Elec R & W Elec'n 66:899-900 My 15 '15
- Central-station practice in renting motors. Elec R & W Elec'n 67:605 O 2 '15
- Central-station sales department organization and work. F. D. Beardslee. Elec R & W Elec'n 65:1073-9 D 5 '14
- Contract-order routine in Louisville. Elec R & W Elec'n 66:29-30 Ja 2 '15
- Details of Cincinnati appliance campaign. Elec R & W Elec'n 67:360-1 Ag 23 '15
- High cost of rendering bills. Elec R & W Elec'n 67:478 S 11 '15
- How can gas and electric companies under one management render the best light service? A. B. Spaulding and N. H. Potter. Am Gas Light J 103:218-19 O 4 '15
- Mapping the motor opportunity. map Elec W 65:1199-1200 My 8 '15
- Merchandising by central stations. T. I. Jones. II Elec W 65:227-9 Ja 23 '15
- Office and stock-room methods. Elec W 65:1036 Ap 24 '15
- Power development methods for Iowa central stations. E. Soukup. Elec R & W Elec'n 66:807-8 My 1 '15
- Results of two years of motor leasing by group of New England companies. Elec W 66:1150 N 20 '15
- Resumption of sale of appliances by Rochester company. II Elec W 66:257-8 J1 31 '15
- Sale of current to municipally owned distributing systems by central stations. W. R. Collier. Elec R & W Elec'n 67:890-3 N 13 '15
- Sale of electric power. T. R. Hay. Elec R & W Elec'n 66:418-19 Mr 6 '15
- Secrets of successful merchandising. II Elec W 65:1637-9 Je 19 '15
- Selling lamp-socket appliances; an analysis of eleven years' experience in marketing electric household devices in southern California. S. M. Kennedy. Elec W 65:1412-14 My 23 '15
- Service rules of twelve central stations. Z. D. Mayhew. II diag Elec W 65:1057-9 Ap 24 '15
- Should the salesman collect money? E. H. Whitehorse. Elec W 66:921-3 O 23 '15
- Successful policies that promote beneficial relations between central stations and contractors. Elec W 66:1098 N 13 '15

Offices

- Electrical equipment and efficient features of the new office building of the Hartford electric light company. II diag Elec W 65:206-9 Ja 23 '15
- Electrical features of new office building of New Bedford, Mass., central station. II Elec R & W Elec'n 67:507-8 S 13 '15

Public relations

- Baby bond that guarantees paid bills. G. B. Saunders. Elec W 66:1084-5 N 6 '15
- Central-station publicity campaign in a municipal lighting plant situation. Elec R & W Elec'n 66:866-7 My 8 '15
- Electric service as a reason for town pride. E. B. Fenton. Elec W 66:757-8 O 2 '15
- Keeping industrial-motor users satisfied. Elec W 65:175-6 Ja 16 '15
- N. E. L. A. public policy committee report. Elec W 65:1510-11 Je 12 '15; Elec R & W Elec'n 66:1107 Je 12 '15
- Old-business department to serve the company's old friends. Elec W 66:595 S 11 '15
- Progressive public policy and its results. II Elec W 65:470-2 F 20 '15
- Public relations as business assets. Elec W 66:742-3 O 2 '15
- Stimulating friendly relations by sale of baby bonds. Elec R & W Elec'n 67:510-11 S 13 '15

Rates

See Electric lighting—Rates; Electric power—Rates

Regulation

- Beaver river power and light company. Elec R & W Elec'n 66:631-2 Ap 3 '15
- Best control of public utilities. F. G. Baum. Am Inst E E Pro 34:1-23 Ja '15; Abstract. Elec W 65:258-9 Ja 23 '15

- Bloomer, Wis., electric light & power company; electric service from rural districts. Elec R & W Elec'n 67:848-9 N 6 '15
- Canada voices its right to forbid the exportation of electrical energy. Elec W 65:311-12 Ja 30 '15
- Decision by Oregon commission, with table of costs for different classes of consumers of the Hood River gas and electric company. Elec W 66:431 Ag 21 '15
- Hearings on water-power bill. Elec W 64:1139 D 19 '14
- Massachusetts commission advises against central-station ice-making. Elec W 65:498 F 20 '15; Elec R & W Elec'n 66:335 F 20 '15
- Merger of Buffalo companies authorized. Elec W 66:37-8 J1 3 '15
- Municipal regulation of public utilities; abstracts. J. H. Roemer. Elec W 65:1511-12 Je 12 '15; Elec R & W Elec'n 66:1107-8 Je 12 '15
- Public utility regulation in California; abstract. M. Thelen. Elec W 65:1512 Je 12 '15
- Rates and by-products. J. R. Cravath. Elec W 65:1029 Ap 24 '15
- Standards for gas and electric service in Illinois. Eng N 72:1148-9 D 10 '14
- State commission with jurisdiction over electrical utilities; map. Elec W 65:1597 Je 19 '15

Rural service

See Electric service, Rural

Valuation of property

- Appraisal of small electric properties. E. D. Dreyfus. Elec R & W Elec'n 66:433-8, 500-5 Mr 6-13 '15
- Cincinnati rate case. Elec W 66:377-8 Ag 14 '15
- Indianapolis electric rate cases. Elec R & W Elec'n 67:235-7 Ag 7 '15
- Symposium on inventories and appraisals of properties. C. L. Cory; W. G. Vincent, jr.; W. J. Norton. Am Inst E E Pro 34:2131-58 S '15
- Valuation of the property of the Kansas City electric light company. Elec W 65:1343 My 22 '15
- Electric shock**
- Causes of electrical accidents in English collieries. diag Elec R & W Elec'n 67:903 N 13 '15
- Contest in rescue and resuscitation work between line crews. II Elec W 66:1015 N 6 '15
- Electric shock. Elec R & W Elec'n 66:686-7 Ap 10 '15
- Safety in stone quarrying; treatment for electric shock. O. Bowles. II U S Bur Mines Tech Pa 111:40-3 '15

Electric shops

- Business hints for dealers. G. D. Crain, jr. Elec R & W Elec'n 66:809-10; 67:664-5, 755-6, 932-3 My 1, O 9, 23, N 20 '15
- Christmas merchandising co-operation—ready for you. II Elec W 66:1199-1200 N 27 '15
- Competing for appliance business. II Elec W 65:1053-6 Ap 24 '15
- Electric-heating appliance salesroom. II Elec W 65:800-3 Mr 27 '15
- Formal opening of Commonwealth Edison company's new office building, Chicago. II Elec R & W Elec'n 67:584-5 S 25 '15
- How to merchandise electrical appliances. J. V. Guilfoyle. II Elec W 65:541-3 F 27 '15
- Jobbing policy with service as the watchword. II Elec W 66:1094-5 N 13 '15
- Keeping the electric shop awake and working. II Elec W 66:593-5 S 11 '15
- Marketing electricity. II Elec W 66:703 S 25 '15
- Merchandising by central stations. T. I. Jones. II Elec W 65:227-9 Ja 23 '15
- Problems of slow-moving stock. II Elec W 66:471-4 Ag 28 '15
- Stage craft in the electric shop. M. J. Russell. II Elec W 65:1693-5 Je 26 '15
- Starting Christmas sales with prosperity week. II Elec W 66:1192-4 N 27 '15
- Year of sales at Providence, R. I. II Elec W 65:1311-15 My 23 '15
- See also Electric railroads—Shops
- Electric shops, Municipal**
- Kansas City has municipal electric shop. Elec R & W Elec'n 66:34 Ja 2 '15

Electric shovels

- Alternating-current controllers for steel mills. A. Simon. *Il Am Inst E E Pro* 34:743-5 My '15; Same. *Iron Tr R* 57:527-8 S 16 '15
- Costs of electric shovel work at Cleveland. *Il Elec Ry J* 44:1261-2 D 6 '14; Same. *Elec R & W Elec'n* 66:172-3 Ja 23 '15
- Low-clearance mechanical shovel. *diags Eng M* 49:214-15 S '15
- Methods and costs of electric shovel work; removing slides and side cutting for electric railway. *diags Eng & Contr* 43:154-5 F 17 '15
- Thew electric shovel for railway work. *Il Elec Ry J* 46:681-2 O 2 '15

Electric signals

- Alternating current signaling. *Elec Ry J* 46:880 O 23 '15
- Battery bell signaling in English mines. R. V. Wheeler. *Elec R & W Elec'n* 66:903-4 My 15 '15; Same. *Elec W* 66:1304 My 22 '15
- Development of main-line signalling on railways. W. C. Acfield. *diags Inst E E J* 53:763-84; Discussion. 53:784-98 Je 1 '15
- Electric shriek to warn mariners: Blériot air strep. *Il Sci Am* 112:200 F 27 '15
- Electric signal horns for factories. *Il Elec R & W Elec'n* 67:993 N 27 '15
- Electric train staff on the Canadian Pacific. E. S. Taylor. *diags Ry Age* 58:100-1 Ja 15 '15
- Electrical system of cab-signalling. V. L. Raven. *Il diags Engineer* 119:85-6 Ja 22 '15
- Hospital signal-lighting system. *diag Elec W* 66:1219 N 27 '15
- Method to notify firemen when chimneys smoke. *diag Elec W* 66:301-2 Ag 7 '15
- Paint twin cableways red and blue for electric signal system. H. E. Ketchum. *Il Eng Rec* 72:117 JI 24 '15
- Protection of railway signal circuits against lightning disturbances. E. K. Shelton. *Gen Elec R* 18:1127-8 D '15
- Real signaling devices for automobiles. *Il Sci Am* 113:274-5 S 25 '15
- See also Electric alarms; Electric railroads—Signals; Fessenden oscillator; Interlocking plants; Mine signals; Railroads—Signals

Electric signs

- Chase changeable signs. *Il Elec R & W Elec'n* 67:991 N 27 '15
- Christmas sign of the Houghton & Dutton company. *Il Elec R & W Elec'n* 65:1171 D 19 '14
- Effective sign for newspaper. *Il Elec R & W Elec'n* 67:509 S 18 '15
- Elaborate electrical Christmas displays at Boston. *Il Elec W* 64:1219 D 19 '14
- Electric signs of London tube railways. *Il Elec R & W Elec'n* 66:25 Ja 2 '15
- Electrical advertising. *Il Elec R & W Elec'n* 65:1080 D 5 '14
- Electrically operated motion signs on horse-drawn trucks. *Il Elec R & W Elec'n* 67:992 N 27 '15
- Electrograph. *Elec R & W Elec'n* 66:1067 Je 5 '15
- Modeling of electrically lighted designs. *Il Elec R & W Elec'n* 66:32 Ja 2 '15
- Novel electric sign at Port Arthur, Tex. *Il Elec R & W Elec'n* 66:241 F 6 '15; Same. *Elec W* 65:426 F 13 '15
- Sign installation in Cincinnati. *Il Elec R & W Elec'n* 65:1169 D 19 '14
- Spectacular electrical display erected by St. Louis central station. *Il Elec R & W Elec'n* 67:909-10 N 13 '15
- Spectacular gas and electric sign in Louisville attracts attention. *Il Elec R & W Elec'n* 67:969-70 N 27 '15
- Spectacular sign of Ford motor company. *Il Elec R & W Elec'n* 66:983-4 My 29 '15
- Spectacular theater sign in Cincinnati. *Il Elec R & W Elec'n* 66:336 F 20 '15
- Steel frame for a large electric sign. *diags Eng N* 78:1071 Je 3 '15
- Talking signs; prevention of arcing. *Elec R & W Elec'n* 67:978-9 N 27 '15
- Unique Chinese sign. *Il Elec R & W Elec'n* 66:111 Ja 16 '15
- Unique lighting of Seattle theater. *Il Elec R & W Elec'n* 66:377 F 27 '15

Laws and regulations

- Electric sign legislation in Massachusetts. *Elec R & W Elec'n* 66:420 Mr 6 '15

Electric sounding. See Sounding**Electric sparks**

- Magneto spark vs. battery-coil spark. D. H. Cunningham. *Automobile* 31:1020-3 D 3 '14

Electric standards

- British standardization rules. *Elec W* 65:1245 My 15 '15
- Construction of primary mercurial resistance standards; abstract. F. A. Wolff, M. P. Shoemaker, and C. A. Briggs. *J Fr Inst* 180:104-6 JI '15
- N. E. L. A. report on standardizing plugs and receptacles. *Elec W* 65:256-7 Ja 23 '15; Same. *Elec R & W Elec'n* 66:245 F 6 '15
- New A. I. E. E. standardization rules. *Elec Ry J* 44:1232 D 5 '14
- Nominal rating of railway motors. G. H. Hill. *Elec Ry J* 46:275-6 Ag 14 '15
- Pennsylvania overhead line crossing specifications. *Elec Ry J* 46:186 JI 31 '15
- Standardization of plugs and receptacles. *Il Elec W* 65:567-8 F 27 '15
- Standardization rules of the American institute of electrical engineers; approved by the board of directors, June 30th, 1915, to take effect July 1, 1915. *Am Inst E E Pro* 34:1939-2041 Ag '15

Electric starters

- Momentary current of starting motors. B. F. Bailey. *Horseless Age* 35:850 Je 23 '15
- Same starting equipment for large and small machines. *Il plan Elec W* 65:420-1 F 13 '15
- See also Automobiles—Starting devices; Electric motors—Starting devices

Electric sterilization

- Electric sterilization of milk. *Elec R & W Elec'n* 67:994 N 27 '15
- Electricity for sterilizing purposes. W. B. Underwood. *Il Elec W* 65:34 Ja 2 '15
- Purification of milk by electricity. *Il Elec W* 64:1153-4 D 12 '14

Electric stoves

- Effect of electric ranges on central-station load in Seattle. *Elec W* 66:646-7 S 13 '15
- Globe electric ranges. *Il Elec R & W Elec'n* 67:840-1 Ag 21 '15
- Large-sized electric-cooking apparatus. *Il Elec W* 66:1103-4 N 20 '15
- Neuco electric cooking appliances. *Il Elec R & W Elec'n* 67:343-4 Ag 21 '15
- New types of Globe electric ranges and stoves. *Il Elec R & W Elec'n* 67:907 N 13 '15
- 69-kw. electric range to cook for 1500 hospital patients and employees. *Il Elec W* 66:1162 N 20 '15
- Unit-part electric range. *Il Elec W* 66:884-5 O 16 '15

Electric street sweepers. See Street cleaning apparatus, Electric

- Electric strength of air. J. B. Whitehead. *Am Inst E E Pro* 34:843-65 My '15; Discussion. 34:2997-3005 D '15

Electric substations. See Electric plants—Substations; Electric railroads—Substations**Electric supplies. See Electric industries; Electric shops**

- Electric supply company, Memphis, Tennessee. Notable southern jobber. *Il Elec R & W Elec'n* 66:526-7 Mr 20 '15

Electric switchboards. See Switchboards**Electric switches**

- Arc phenomena. A. G. Collis. *Il diags Am Inst E E Pro* 34:2081-2100 S '15
- Arcing characteristics of air-break switches. C. E. Bennett. *Il Elec W* 66:353-5 O 16 '15
- Automatic starting switches for small alternating-current motors. *Il Elec R & W Elec'n* 66:1007 My 29 '15
- Balanced disconnecting switch. *Il Elec R & W Elec'n* 67:632 O 2 '15
- Battery switches—charge indicators. P. M. Heldt. *diags Horseless Age* 35:740-2 Je 2 '15
- Brush-type lever switch. *Il Elec W* 66:603 S 11 '15
- Demountable switch. *Il Elec W* 65:876 Ap 3 '15
- Developments in electrical apparatus during 1914. J. Liston. *Il diags Gen Elec R* 18:90-2 F '15

Electric switches—Continued

- Disconnecting switch with torsional-balanced blade. *Il Elec W 66:939 O 23 '15*
 Double-ear overhead switch. *Il Elec Ry J 46:1091 N 27 '15*
 Electrically wound time switch. *Il Elec R & W Elec'n 66:1066 Je 5 '15*
 Entrance switch and stage pocket. *Il Elec R & W Elec'n 66:1193 D 19 '14*
 Fused switch that prevents replacement of fuses while switch is closed. *Il Elec W 66:602-3 S 11 '15*
 High-tension switch gear arrangements. T. T. Evans. *Il Engineer 119:461-2 My 7 '15*
 High-tension switching systems. J. A. Randolph. *Power 41:331-5 Mr 30 '15*
 High-voltage, three-phase air-break switch. *Il Elec W 66:938 O 23 '15*
 Improved disconnecting switches and busbar supports for large generating plants. *Il Elec R & W Elec'n 67:728-31 O 16 '15; Elec W 66:833-4 O 16 '15*
 Improved tripping mechanism for oil switch. *diag Elec W 66:39 Ja 2 '15*
 Interchangeable high-tension switches. C. Opitz. *diag Elec W 66:124 J1 17 '15*
 Lever switches for low-voltage circuits. *Il Elec W 66:1163 N 20 '15*
 New line of Cutler-Hammer magnetic switches. *Il Elec R & W Elec'n 66:1099 D 5 '14*
 Oil knife switches. *Il Elec Ry J 46:157 J1 24 '15*
 Oil-switch explosions. *Elec W 66:1154 My 8 '15*
 Outdoor switch houses. *Il Elec R & W Elec'n 67:33-4 J1 3 '15*
 Recent developments in switchboard apparatus. E. H. Beckert. *Il diags Gen Elec R 18:646-57 J1 '15*
 Same starting equipment for large and small machines. *Il plan Elec W 66:420-1 F 13 '15*
 Service switch arranged for disconnection of fuses before handling. *Il Elec R & W Elec'n 67:444 S 4 '15*
 Simple battery switching scheme for operating oil circuit-breakers. *diag Elec W 66:1091 N 13 '15*
 Six-ampere pull switch. *Il Elec W 66:1222 N 27 '15*
 Switch designed to exclude insects. *Il Elec W 66:304 Ag 7 '15*
 Switching equipment in plant of Indiana railway & light company. *Il Elec R & W Elec'n 66:926 My 15 '15*
 Tank lifters for small oil switches. *Il Elec Ry J 46:71-2 J1 10 '15; Iron Age 96:185 J1 22 '15; Power 42:156 Ag 3 '15*
 Three-in-one oil and disconnecting switch. *Il Elec W 66:1108-6 N 13 '15*
 Time switch for series-tungsten street-lighting system. J. P. Byron. *diags Elec W 66:223 Ja 23 '15*
- Electric symbols**
 International symbols; report issued by the International electrotechnical commission. *Inst E E J 53:106-8 D 15 '14*
 Standardization rules of the American institute of electrical engineers; approved by the board of directors, June 30th, 1915, to take effect July 1, 1915. *Am Inst E E Pro 34:1946-8 Ag '15*
 Units and notation; abstract. *Elec W 64:1116 D 5 '14*
- Electric taxicabs.** See Taxicabs, Electric
- Electric terminology.** See Electric wire and wiring—Terminology; Electricity—Terminology
- Electric testing**
 Automatic device for timing relay and fuse operation. *plan Elec W 66:808-9 Mr 6 '15*
 Effect of altitude on the spark-over voltages of bushings, leads and insulators. F. W. Peek, jr. *Il diags Am Inst E E Pro 33:1877-86 D '14; Same. Gen Elec R 18:137-42 F '15; Discussion. Am Inst E E Pro 34:1328-49 Je '15*
 Field and armature tester. *Il Elec W 66:262 J1 31 '15*
 High-tension test. W. P. Woodward. *Il Gen Elec R 18:398-401 My '15*
 Life-testing equipment for tungsten lamps; electrical features of the incandescent lamp-testing laboratory at Nela Park, Cleveland. *Il plan Elec W 66:12-16 J1 3 '15*
- Measuring the current in d. c. circuits. O. A. Knopp. *Il diags Elec W 66:751-2 O 2 '15*
 Methods of testing the Scherbius compensator. A. A. Ahmed. *Inst E E J 53:640-8 My 1 '15*
 Polarity tester. *diag Engineer 118:560 D 11 '14; Same. Elec W 66:102 Ja 9 '15*
 Portable car testing set. D. D. Ewing. *plan Elec Ry J 46:152 J1 24 '15*
 Production of damped oscillations. L. O. Heath. *diags Gen Elec R 18:1110-17 D '15*
 Proper construction of earth connections. G. H. Rettew. *Gen Elec R 18:904-7 S '15; Abstract. Engineer 120:462 N 12 '15*
 Series of electrical tests made in 1883 and their influence on modern testing. A. L. Rohrer. *Gen Elec R 18:32-4 Ja '15*
 Testing of potentiometers. F. Wenner and E. Weibel. *Il diags U S Bur Stand Bul 11:1-40 N 15 '14*
 Voltage and insulation-resistance tests for wires of various sizes. *Elec W 66:1050 Ap 24 '15*
 Voltage testing of cables. W. I. Middleton and C. L. Dawes. *Il diag Am Inst E E Pro 33:987-1008 Je '14; Abstract. Elec R & W Elec'n 65:32-3 J1 4 '14; Discussion. Am Inst E E Pro 34:70-8 Ja '15*
- See also Dynamometers; Electric lamps, Tungsten—Testing; Electric measurement; Electric meters; Electric motors—Testing; Electric resistance; Electric transformers—Testing
- Electric toasters**
 Electric toaster with rack for drying bread and keeping toast warm. *Il Elec W 66:1217 N 27 '15*
- Electric toys**
 Marketing of a new electrical toy. *Elec R & W Elec'n 67:980 N 27 '15*
 Promoting electric cooking through the rising generation. *Il Elec W 66:1197-8 N 27 '15*
 Recent developments in electrically operated toys. *Il Elec W 66:1214-17 N 27 '15*
- Electric tractors**
 Storage-battery-drive tractor. G. Boughner. *Munic Eng 49:150 O '15*
- Electric transformers**
 Abnormal voltages in transformers. J. M. Weed. *Am Inst E E Pro 34:1621-56 Ag '15*
 Avoiding the no-load losses in transformers; abstract. B. Thierbach. *Elec W 66:1117-18 My 1 '15*
 Bell-ringing, toy and sign-lighting transformers. *Il Elec R & W Elec'n 67:948 N 20 '15*
 Bell-ringing transformers. *Il diags Elec R & W Elec'n 66:150-1 Ja 23 '15*
 Care of transformers. *Elec W 66:1198 My 8 '15*
 Cleaning transformer cooling coils. *Elec R & W Elec'n 67:568 S 25 '15*
 Compounding transformers; abstract. L. Dreyfus. *Elec W 66:410 Ag 21 '15*
 Constant-current transformer. J. A. Randolph. *diags Power 41:153-6 F 2 '15*
 Current transformer. A. G. L. McNaughton. *Inst E E J 53:269-71 F 1 '15*
 Delta-cross connections of transformers for parallel operation of two- and three-phase systems. G. P. Roux. *diags Am Inst E E Pro 34:1683-84 Ag '15*
 Design of stationary transformers. S. Cabot and C. F. Cairns. *Elec W 66:459-63 Ag 23 '15*
 Designing small transformers. N. G. Meade. *Power 41:262-3 F 23 '15*
 Dimensions of transformers. A. R. Low. *bibliog diags Inst E E J 53:512-21 Ap 1 '15*
 Drying high-tension transformers with steam heat. *diag Elec W 66:678 Mr 13 '15*
 Drying large transformer units electrically. *Il Elec W 66:736-7 Mr 20 '15*
 Effect of delta and star connections upon transformer wave forms. L. F. Curtis. *Am Inst E E Pro 33:1153-7 Ag '14; Discussion. 34:126-9 Ja '15*
 Effect of third harmonic in voltage wave. R. C. Powell. *diags Elec W 66:157-8 Ja 16 '15*
 Effects of frequency upon transformers. G. Fox. *diag Elec R & W Elec'n 66:83 Ja 9 '15; Same. Power 42:401 S 21 '15*
 Emergency transformer connections. G. P. Roux. *Gen Elec R 18:332-5 Ag '15*

Electric transformers—Continued

- Form factor and its significance. F. Bedell, R. Bown and H. A. Pidgeon. *Am Inst E E Pro* 34:1051-8 Je '15; Abstract. *Elec W* 66:7 J1 3 '15
- Formula for checking operating temperature of water-cooled transformers. G. E. Armstrong. *Elec W* 66:1030 N 6 '15
- Fused transformer cut-out. *diag Elec W* 66:772 O 2 '15
- Harmonics in transformer magnetizing currents. J. F. Peters. *diags Am Inst E E Pro* 34:1657-73 Ag '15
- Mechanical forces in circuits carrying heavy currents; abstract. P. V. Hunter. *Elec W* 64:1259 D 26 '14
- Mechanical stresses in shell-type transformers. J. M. Weed. *il diags Gen Elec R* 18:60-4 Ja '15
- Million-volt transformer to be demonstrated at the Panama-Pacific exposition. N. Willson. *il Elec R & W Elec'n* 67:945-6 N 20 '15
- Miniature transformers. *il Elec W* 66:1221 N 27 '15
- Number system keeps track of transformers. *il Elec W* 66:190 J1 24 '15
- Open-circuited compensator. J. A. Horton. *diag Power* 41:617-18 My 4 '15
- Open delta connection for transformers. *Engineer* 120:262-3 S 10 '15
- Open-delta or V-connection of transformers. G. P. Roux. *Gen Elec R* 18:52-5 Ja '15
- Operation and design of auto-transformers. N. G. Meade. *diags Power* 41:804-6 Je 15 '15
- Operation of transformer used with 2 kw. 100,000 cycle alternator. S. P. Nixdorff. *Gen Elec R* 18:308-9 Ap '15
- Parallel operation of transformers; abstract. R. H. Willard. *diags Elec W* 66:76 J1 10 '15
- Phase angle of current transformers. C. L. Dawes. *Am Inst E E Pro* 34:927-40 My '15
- Phenomena accompanying transmission with some types of star transformer connections. L. N. Robinson. *Am Inst E E Pro* 34:1875-81 Ag '15
- Points to be considered when drying out transformers. *Elec W* 66:1208 N 27 '15
- Principal factors governing the choice of method of cooling power transformers as related to their first cost and operating conditions. W. S. Moody. *il Gen Elec R* 18:839-41 Ag '15
- Radiator-type transformers for the New Haven system. *il diags Elec W* 65:491-3 F 20 '15
- Report on switch and transformer oils. W. P. Digby. *Inst E E J* 53:146-56 Ja 1 '15; Abstract. *Elec W* 65:345-6 F 6 '15
- Series transformer for gas-filled tungsten street lamps. *il Elec R & W Elec'n* 66:38 Ja 2 '15
- Serving three-phase motor loads. R. E. Cunningham. *il diag Elec W* 66:588 S 11 '15
- Single-phase loads from polyphase systems. *Engineer* 120:185-6 Ag 20 '15
- Some transformer connections. G. Fox. *diags Power* 41:46-8 Ja 12 '15
- Transformer connections. A. A. Fredericks. *Power* 41:381-2 Mr 18 '15
- Transformer fuse block. *il Elec W* 65:178-9 Ja 16 '15
- Transformer stresses; abstract. W. E. Burnand. *Elec W* 66:541 S 4 '15
- Transformer winding. *diag Elec R & W Elec'n* 67:478-80 S 11 '15
- Transmission session of the Am. Inst. E. E. *Elec R & W Elec'n* 67:572-3 S 25 '15
- Voltage and current relations in open-delta-connected transformers. B. F. Jakobsen. *Elec W* 66:17-18 J1 3 '15
- Wiring a transformer bank from one end. *il Elec W* 66:264-5 J1 31 '15
- See also Electric current rectifiers; Electric currents; Electric distribution; Induction coils; Rotary converters

Testing

- Calibration of current transformers by means of mutual inductance. C. Fortescue. *diags plis Am Inst E E Pro* 34:1199-1215 Je '15
- Watt-hour meter method of testing instrument transformers. P. G. Agnew. *diags U S Bur Stand Bul* 11:347-57 My 10 '15; Summary. *Elec R & W Elec'n* 65:1146-7 D 12 '14

Electric transmission

- Analyzing electric waves for harmonics. C. W. Ricker. *il Elec W* 66:634-5 S 18 '15
- Bombay hydro-electric scheme. A. Dickinson. *maps diags plans Inst E E J* 53:693-714 My 15 '15; Discussion. 53:715-21, 802-4 My 15-Je 1 '15
- Calculation of the long distance transmission line under constant alternating voltage. G. R. Dean. *Am Inst E E Pro* 34:2241-62 O '15
- Central-station development at Portland, Me. *il diags Elec W* 65:590-6 Mr 6 '15
- Delta-cross connections of transformers for parallel operation of two- and three-phase systems. G. P. Roux. *diags Am Inst E E Pro* 34:1683-94 Ag '15
- Discussion on transmission lines. (See Proceedings for June and July, 1915) *Am Inst E E Pro* 34:3117-26 D '15
- Distributing potential over a string of insulators. J. L. Brenneman and H. M. Crothers. *diags Elec W* 64:1095-9 D 5 '14
- Effect of delta and star connections upon transformer wave forms. L. F. Curtis. *Am Inst E E Pro* 33:1153-7 Ag '14; Discussion. 34:125-9 Ja '15
- Electric service in and near Peoria, Ill. *il map Elec W* 65:281-5 Ja 30 '15
- Electric transmission of power. R. E. Argersinger. *il Gen Elec R* 18:454-9 Je '15
- Energy transmission work of 1914. L. Bell. *Elec W* 65:21-2 Ja 2 '15
- Engineering data relating to high-tension transmission systems; discussion. *Am Inst E E Pro* 34:284-99 F '15
- Experiments on the heating of screw-socket lampholders. C. C. Paterson. *il diags Inst E E J* 53:14-21 D 1 '14
- Flow of energy. R. A. Philip. *diags Am Inst E E Pro* 34:455-84 Ap '15; Same. *W Soc E J* 20:444-72 My '15; Same cond. *Engineer* 120:67-9 J1 16 '15; Same cond. *Power* 42:352-5 S 7 '15; Discussion. *W Soc E J* 20:472-7 My '15
- Four years' operating experience on a high-tension transmission line. A. Bang. *diag plis Am Inst E E Pro* 34:1425-45 J1 '15; Abstract. *Elec W* 66:10-11 J1 3 '15
- Future operation of long electric transmission lines. R. A. Philip. *il Eng N* 73:438-9 Mr 4 '15
- Georgia-Carolina company transmission system. *il diags Elec W* 66:1189-91 N 27 '15
- High-tension power transmission problems discussed at December A. I. E. E. meeting. *diags Elec Ry J* 44:1348 D 19 '14
- High-voltage transmission at high altitude. P. H. Thomas. *il diags plan Elec W* 65:29-34, 87-92 Ja 2-9 '15
- Hydroelectric development on Bishop Creek, Cal. C. O. Poole. *il diags map Elec W* 64:1045-7, 1093-4, 1143-7, 1193-6 N 28-D 19 '14
- Insulator performance from operating viewpoint. E. P. Peck. *il Elec W* 66:1077-9 N 13 '15
- Interconnected systems serving San Francisco; details of the generating equipments and transmitting circuits tied in with the larger system of the Pacific gas & electric company, which covers half of California. *il diags map Elec W* 65:1356-82 My 29 '15
- Interior wiring for lighting and power service. A. L. Cook. *Power* 41:702-6 My 25 '15
- Labor-saving transmission-line chart: calculating voltage drop on overhead alternating-current system. H. B. Dwight. *Elec W* 65:159-61 Ja 16 '15
- Long transmission lines completed by the Stone & Webster engineering corporation. R. A. Philip. *diags Elec R & W Elec'n* 65:1222-3 D 26 '14
- N. E. L. A. hydroelectric and transmission committee report. *Elec W* 65:1517-18 Je 12 '15
- Newcastle local section; chairman's address. F. V. Hunter. *diag Inst E E J* 53:102-6 D 15 '14
- One boiler room instead of fifty; Cabin Creek plant of the Virginia power company. *il diags Elec W* 66:286-91 Ag 7 '15
- 115,000-volt hydroelectric system in Japan. *il diags plan Elec W* 65:1599-1606, 1671-8 Je 19-26 '15

Electric transmission—Continued

- 150,000-volt transmission system: some operating conditions of the Big Creek development of the Pacific light & power corporation. E: Woodbury. *Il Am Inst E E Pro* 33: 1359-70 S '14; Discussion. 34:130-3 Ja '15
- Open-delta or V-connection of transformers. G: P. Roux. *Gen Elec R* 18:52-5 Ja '15
- Overhead construction work at Khopoli, Bombay, diags *Elec R & W Elec'n* 66:914-18 My '15
- Phenomena accompanying transmission with some types of star transformer connections. L. N. Robinson. *Am Inst E E Pro* 34:1675-81 Ag '15
- Protection and control of industrial electric power. C: P. Steinmetz. *Il Gen Elec R* 18: 979-85 O '15
- Sphere gap as a means of measuring high voltage; discussion. F. W. Peek, jr. *Am Inst E E Pro* 34:103-24 Ja '15
- Sphere gap discharge voltages at high frequencies; discussion. J. C. Clark and H. J. Ryan. *Am Inst E E Pro* 34:103-24 Ja '15
- Static electricity from transmission lines. C. O. Poole. *diag Elec W* 65:773 Mr '17
- Theoretical investigation of electric transmission systems under short circuit conditions. I. W. Gross. *Am Inst E E Pro* 34:25-69 Ja '15; Abstracts with discussion. *Elec R & W Elec'n* 66:126-7 Ja 16 '15; *Elec W* 65:163-4 Ja 16 '15; Discussion. *Am Inst E E Pro* 34: 2851-68 N '15
- Theory of electric waves in transmission lines. J. M. Weed. *diags Gen Elec R* 18:1148-53 D '15
- Thury system of direct current transmission. W: Baum. *bibliog il diags map Gen Elec R* 18:1026-41 N '15
- Transmission line calculator. R. W. Adams. *diags Gen Elec R* 18:28-30 Ja '15
- Transmission-line construction for mountain districts. H. M. Somerville. *il diag Elec W* 66:862-3 O 16 '15
- Transmission system of the electrified divisions. C. M. & St. P. Ry. R. E. Wade. *Il Ry R* 57:203-5 Ag 14 '15
- Trigonometric expressions for the phenomena occurring in long-distance transmission lines. V. Karapetoff. *Elec W* 66:857-60, 914-15 O 16-28 '15
- 200-mile artificial transmission line. C. E. Magnusson, J. Gooderham and R. Rader. *il diags Elec W* 65:1545-9 Je 12 '15
- Wiring and conduit work at the Panama-Pacific exposition. A. A. Willoughby. *diag Elec R & W Elec'n* 67:432-5, 472-4 S 4-11 '15
- See also Electric conductors; Electric conduits; Electric distribution; Electric driving; Electric lines; Electric plants—Central stations; Electric plants—Substations; Electric power; Electric switches; Hydroelectric plants
- Electric transmission lines.** See **Electric lines**
- Electric trucks**
- Battery-service system. F. B. Rae, jr. *Elec R & W Elec'n* 67:454+ S 4 '15
- Eighteen electric vehicles displace forty horse-drawn units. *Il Elec W* 66:706-7 S 25 '15
- Electric trucks for Boston mail service. *Elec W* 66:338 Ag 14 '15
- Electric vehicles for hauling lumber and cotton; for freight handling; road making and garbage disposal. *Il Automobile* 31:1080-1 D 10 '14
- Electric vehicles in central-station service. *Il Elec R & W Elec'n* 66:293 F 13 '15
- Expansion of electric-vehicle business in Boston; mail delivery. *Il Elec R & W Elec'n* 67: 277-8 Ag 14 '15
- Increasing business with electric trucks by battery-service system. *il diag Elec W* 66: 195-9 JI 24 '15
- New York electric car campaign. *Elec R & W Elec'n* 67:970-1 N 27 '15
- Operating experience with electric pole trucks at Philadelphia. *Il Elec W* 65:1706 Je 26 '15
- Opportunity for electric vehicles in mail service. *Elec W* 65:566-7 F 27 '15
- Opportunity for the sale of electric; specific advantages for various industries. *Elec R & W Elec'n* 67:703-9 O 16 '15

- Performance of gas and electric trucks. W: J. Miller and S. G. Thompson. *Automobile* 33: 761-2 O 21 '15
- Purchase and care of the initial truck. G. D. Smith. *Elec R & W Elec'n* 67:261-2, 264 Ag 7 '15
- Saying with electric vehicles; equipment of the Curtis publishing company. *Il Elec W* 65: 1063-6 Ap 24 '15
- Tests on electric trucks in mail service at Denver, Col. *Elec W* 66:539 S 4 '15
- Twelve new commercial electric. *Automobile* 32:128-9 Ja 21 '15
- United States government uses many electric. *Il Elec R & W Elec'n* 65:1212 D 26 '14
- Versatility of the electric truck. *Il Elec W* 66: 481 Ag 28 '15
- Wagon with two-motor concentric-gear drive. *Il Elec W* 65:746 Mr 20 '15

Cost of operation

- Commercial electric truck operating costs. *Elec W* 65:567 F 27 '15
- Comparisons between horse, gasoline and electric delivery costs; summary of electric vehicle study by Massachusetts institute. H. F. Thomson. *Elec R & W Elec'n* 67:874+ N 6 '15
- Economy of the electric truck for delivering coal—unit costs compared. *Elec W* 66:1038 N 6 '15
- Garbage collection studies in Chicago justify continued use of horses. *Eng Rec* 72:52-3 JI 10 '15
- Operating cost of a five-ton electric vehicle. *Elec R & W Elec'n* 67:470 S 11 '15
- Operating cost of commercial electric vehicles. W: P. Kennedy. *Elec W* 65:1316-22 My 22 '15; Discussion. 65:1532 Je 12 '15
- Operating costs of industrial electric trucks. *Elec R & W Elec'n* 67:872 N 6 '15
- Opportunity for the sale of electric; specific advantages for various industries. *Elec R & W Elec'n* 67:703-9 O 16 '15
- Savings through electric-vehicle operation at Wichita, Kan. *Elec W* 64:1253 D 26 '14

Specifications

- Specifications of 91 electric truck chassis for 1915. *Automobile* 32:130-1 Ja 21 '15
- Electric trucks, Municipal**
- Electric street sprinklers. *Il Elec W* 65:238 Ja 23 '15; Same. *Eng Rec* 71:117 Ja 23 '15
- Electric trucks in factories, freight terminals, etc.**
- Cost data for electric trucks in freight houses. *Eng Rec* 71:408 Mr 27 '15
- Crane-equipped storage battery truck. *Il Iron Age* 96:1173 N 13 '15
- Economy gained by handling freight with electric trucks at marine terminals. *Il Int Marine Eng* 20:124-5 Mr '15
- Edwards steel trucks. *Il Elec R & W Elec'n* 65:1231-2 D 26 '14
- Electric stevedore. A. J. Marshall. *Il Elec R & W Elec'n* 66:1084, 1086 Je 5 '15
- Electric trucking at the New York terminal of the Southern Pacific steamship company. *Il Int Marine Eng* 20:102 Mr '15
- Electric trucks in railroad freight houses. *Elec W* 65:1706 Je 26 '15
- Electrical appliances for workshops. *il diag Engineer* 120:32-4 JI 23 '15
- Electrical stevedores. M. C. Horine. *Il Eng M* 49:590-1 JI '15
- Experience with a storage battery truck. *Iron Age* 96:531 S 2 '15
- Handling cotton with electric freight trucks at Galveston. *Il Int Marine Eng* 20:103-4 Mr '15
- Handling freight with storage battery trucks. *Il Ry Age* 57:1093-4 D 11 '14
- Pennsylvania railroad's industrial trucks; operating data and cost. T. V. Buckwalter. *Il Ry Age* 59:737-9 O 22 '15; Same. *Ry R* 57: 886-9 N 27 '15; Same cond. *Elec Ry J* 46: 864-6 O 23 '15
- Storage battery truck for factory use. *Il Iron Age* 95:1258 Je 10 '15
- Electric units**
- Constants for converting electrical units to horsepower. C: S. Ohrenschall. *Mach* 21:794 Je '15

Electric units—Continued

Kelvin for the unit of electric energy. W. B. Wallis. *Elec R & W Elec'n* 66:171 Ja 23 '15;
Same. *Power* 41:172 F 2 '15

See also Electric symbols

Electric vehicle association

Electric vehicle association of America; its influence on the present and future development of the industry. *Elec R & W Elec'n* 67:697-702 O 16 '15

Papers and discussion at Cleveland, Oct. 18-19. *Elec R & W Elec'n* 67:764-7 O 23 '15

6th annual convention, Cleveland, Oct. 18-19. *Automobile* 33:760 O 21 '15

6th annual convention, Cleveland, Oct. 18-19. *Elec W* 66:902-4 O 23 '15

Electric vehicle industry

Battery rental systems as an aid to electric-vehicle development. *Elec R & W Elec'n* 67:793-4 O 30 '15

Educational value of sociability runs. A. J. Marshall. *Elec R & W Elec'n* 67:458 S 4 '15

Electric vehicle association meets. *Elec R & W Elec'n* 67:764-7 O 23 '15

Electric-vehicle topics discussed at San Francisco convention. *Elec W* 65:1649-50 Je 19 '15

Selling the electric vehicle. *Elec R & W Elec'n* 65:1181 D 12 '14

Selling vehicles on the installment plan. *Elec W* 66:856 O 16 '15

Training dealers to sell vehicles. *Elec W* 65:553 F 27 '15

Electric vehicles

Chicago electric announces price reduction and battery rental system. *Elec R & W Elec'n* 67:641-2+ O 2 '15

Detroit electrica lower in price. *Automobile* 33:280-1 Ag 12 '15

Electric car registrations increasing. *Automobile* 32:127 Ja 21 '15

Electric cars, 1915 models. *Automobile* 32:132-43 Ja 21 '15

Electric vehicle operation—an actual service study. A. S. Wells. plan *Elec R & W Elec'n* 66:405-6+ Mr 6 '15

Electric vehicle reports. *Automobile* 32:35-6 Ja 14 '15

Interchangeable-battery system for electric vehicles. *diags Elec W* 64:1266 D 20 '14

Lightweight electric vehicle. *Sci Am* 112:346 Ap 10 '15

Milburn electrica in three models. *Automobile* 31:1110-11 D 17 '14

New England question box convention. *Elec R & W Elec'n* 66:599-600 Mr 27 '15

1916-model electric passenger cars. *Elec W* 66:824-5 O 9 '15

Osborn electricquette; electrically propelled chair. O. E. Thomas. *Gen Elec R* 18:299-300 Ap '15

Vehicle maintenance. R. Macrae. *Elec R & W Elec'n* 66:397 F 27 '15

See also Electric buses; Electric tractors; Electric trucks; Electric vehicle industry; Garages, Electric; Motor cars (railroad)—Storage battery; Storage batteries—Charging; Taxicabs, Electric; Wheel chairs, Electric

Control

Electric vehicle control. *Elec R & W Elec'n* 66:495-6 Mr 13 '15

Electric vehicles, Municipal

Use of electric vehicles in municipal service. *Elec R & W Elec'n* 67:41-2 J1 3 '15

Electric vehicles and the central station

Battery-exchange service in Boston. *Elec R & W Elec'n* 67:105 J1 17 '15

Battery-service system. F. B. Rae, jr. *Elec R & W Elec'n* 67:454+ S 4 '15

Boosting electrica in New England. *Elec W* 66:448-9 Ag 23 '15

Comparative development of the commercial-power and electric-vehicle loads. *Elec R & W Elec'n* 67:876+ N 6 '15

Electric vehicle and the central station; abstracts. J. F. Gilchrist and A. J. Marshall. *Elec R & W Elec'n* 67:44, 46 J1 8 '15; *Elec W* 65:1524-5 Je 12 '15

Electric vehicle as a business builder. *Elec R & W Elec'n* 67:710-12 O 16 '15

Electric vehicle situation in New England. *Elec W* 65:803-5 Mr 27 '15

Increasing business with electric trucks by battery-service system. *diag Elec W* 66:195-9 J1 24 '15

Opportunities for the central station in the electric-vehicle industry in 1915. J. F. Gilchrist. *Elec W* 65:9-10 Ja 2 '15

Review of the electric-vehicle field. W. P. Kennedy. *Elec W* 65:25-7 Ja 2 '15

Electric washing machines. See Washing machines, Electric

Electric water heaters

Electric immersion heater. *Elec W* 66:1047 N 6 '15

Electric water heater for soda-fountain service. *Elec W* 66:881 O 16 '15

Electricity for sterilizing purposes. W. B. Underwood. *Elec W* 65:34 Ja 2 '15

Heat insulation of electric water heaters; abstract. A. Rittershausen. *diag Elec W* 66:651-2 S 18 '15

Electric waves

Abnormal voltages in transformers. J. M. Weed. *Am Inst E E Pro* 34:1631-56 Ag '15

Analytical and graphical solution for non-sinusoidal alternating currents. F. M. Mizushi. *Am Inst E E Pro* 34:1075-86 Je '15; Abstract. *Elec W* 66:8 J1 3 '15

Analyzing electric waves for harmonics. C. W. Ricker. *Elec W* 66:634-5 S 18 '15

Coolidge X-ray tube. R. Bown. *di plan Elec W* 65:396-7 F 13 '15

Direct-reading instrument for measuring the logarithmic decrement and wave length of electromagnetic waves. F. A. Kolster. *diags U S Bur Stand Bul* 11:421-55 My 10 '15

Discussion on irregular wave shapes. (See Proceedings for June, 1915) *Am Inst E E Pro* 34:8087-8116 D '15

Distortion factors. F. Bedell, R. Bown and C. L. Swisher. *Am Inst E E Pro* 34:1059-73 Je '15; Abstract. *Elec W* 66:7-8 J1 8 '15

Distortion of alternating current wave caused by cyclic variation in resistance. F. Bedell and E. C. Mayer. *diags Am Inst E E Pro* 34:177-86 F '15; Discussion. *34:2584-9 O '15*

Effect of transient voltages on dielectrics. F. W. Peek, jr. *Am Inst E E Pro* 34:1695-1747 Ag '15

Electric waves and oscillations; means of investigating the interior of the earth. G. Leibmarch. *Sci Am* S 79:154-5 Mr 6 '15

Form factor and its significance. F. Bedell, R. Bown and H. A. Pidgeon. *Am Inst E E Pro* 34:1051-3 Je '15; Abstract. *Elec W* 66:7 J1 8 '15

Function of the earth in radio-telegraphy. J. A. Fleming. *Sci Am* S 79:29 Ja 9 '15

Harmonics in transformer magnetizing currents. J. F. Peters. *diags Am Inst E E Pro* 34:1657-73 Ag '15

Magnetic behaviour of iron under alternating magnetization of sinusoidal waveform. N. W. McLachlan. *diags Inst E E J* 53:809-19 Je 15 '15

Mathematical relationship between flux and magnetizing-current waves at high flux densities. A. L. Tackley. *Inst E E J* 53:521-5 Ap 1 '15

Production of damped oscillations. L. O. Heath. *diags Gen Elec R* 18:1110-17 D '15

Scientific work of Prof. J. C. Bose. J. Kunz. *Sci Am* S 79:291 My 8 '15

Theory of electric waves in transmission lines. J. M. Weed. *diags Gen Elec R* 18:1148-53 D '15

Velocity of Hertzian waves. H. E. Saunders. *diags Sci Am* S 80:21-2 J1 10 '15

See also Electric currents, Alternating; Wireless telegraph

Electric welding

Answers to some questions on electric arc welding. J. F. Lincoln. *Am Inst E E Pro* 34:433-8 Mr '15; Same. *Iron Tr R* 56:623-4 Mr 25 '15; Same cond. *Ry Age (Mech ed)* 89:195 Ap '15; Discussion. *Am Inst E E Pro* 34:2941-6 D '15

Electric welding—Continued

- Arc welding and its application in the metal-working industry. J. F. Lincoln. Elec R & W Elec'n 66:1161-3 Je 19 '15; Same cond. Foundry 43:139-40 Ap '15; Excerpts. Iron Age 95:949 Ap 29 '15
- Automatically welded electric joints in Brooklyn. Il Elec Ry J 44:1310 D 13 '14
- British chain welder. Il Iron Tr R 57:272 Ag 5 '15
- Compact arc-welding outfit. Il Elec Ry J 46:195 Jl 31 '15
- Constant current electric welder. Il Ry Age (Mech ed) 89:490 S '15
- Costs of electric-arc welding. G. W. Cravens. Eng N 73:1084 Je 3 '15
- Electric-arc welding. Il Eng & Min J 99:947-8 My 29 '15; Same. Power 42:27 Jl 6 '15
- Electric butt-welding practice. D. T. Hamilton. diags Mach 21:562-5, 680-3, 735-9 Mir-My '15
- Electric process for safe-ending tubes. L. R. Pomeroy. diags Ry Age (Mech ed) 89:469-70 S '15
- Electric welding. G. Fox. Il diags Elec R & W Elec'n 67:117-19, 156-9, 204-6 Jl 17-31 '15
- Electric welding costs. J. H. Bryan. Ry R 56:187 F 6 '15
- Electric welding in boiler maintenance; report of committee of Master boiler makers' association. Ry Age (Mech ed) 89:312-13 Je '15; Same. Ry Age 58:1166-7 Je 4 '15
- Electric welding outfit of new design. Il Iron Tr R 57:264 Ag 5 '15
- Electric welding with dynamotor sets. D. Durie. Elec Ry J 46:324 Ag 21 '15
- Folding box to guard the public eye against welding. R. P. Williams. Il Elec Ry J 45:847-8 My 1 '15
- How a water-tube boiler was repaired by an electric weld. A. C. Lasher. Elec W 66:1207-8 N 27 '15
- Master blacksmiths' convention; discussion of electric welding. Il diags Ry Age (Mech ed) 89:476-80 S '15
- Modern methods of electric welding and their application. H. S. Marquand. diags Inst E E J 53:851-6 Je 15 '15
- Modern practice in electrical arc welding. J. A. Randolph. Il Foundry 43:116-17 Ag '15; Same. Iron Tr R 57:490-1 S 9 '15
- Percussive electric welding. D. T. Hamilton. Il diags Mach 21:807-12 Je '15
- Power-driven spot welding machine. Il Iron Age 96:85 Jl 8 '15
- Restoring steel wheel flanges with a welder. F. A. Murphy. Il Elec Ry J 45:719-20 Ap 10 '15
- Seventy years of inventions. Il Sci Am 112:518-19 Je 5 '15
- Thomson electric welding patents upheld. Elec W 66:861-2 O 16 '15
- Three new welding machines, by Agnew electric welder co., Detroit, Mich. Il Iron Age 95:787 Ap 8 '15
- Toledo butt and spot welders. Il Mach 21:673-4 Ap '15; Elec W 65:952 Ap 10 '15
- Welding shafts on special machine. Il Iron Tr R 56:881 Ap 1 '15; Iron Age 95:736-7 Ap 1 '15
- Electric wire and wiring**
- American and foreign wiring rules. Elec W 64:1083 D 5 '14
- American versus continental wiring standards. H. K. Richardson. Elec W 65:1157 My 8 '15
- Bare concentric wire. R. S. Hale. Elec W 65:570-2 F 27 '15
- Changes in National electrical code. Elec W 65:878-80 Ap 3 '15
- Cheap house wiring. Elec W 65:204 Ja 23 '15
- Cheap wiring methods discussed. Elec W 64:1235 D 26 '14
- Cheaper electric wiring and the manufacturers of standard wiring devices. Elec R & W Elec'n 65:1201-2 D 26 '14
- Cheaper house wiring; description of the bare concentric wire. W. H. Blood, jr. Elec W 64:1134 D 12 '14
- Cheaper wiring. G. Weiderman; J. A. Cavanaugh. Elec R & W Elec'n 66:81 Ja 9 '15
- Cheaper wiring. W. W. Lewin. Elec W 65:716 Mr 20 '15
- Cheaper wiring: views of authorities in England. Elec R & W Elec'n 66:242-4, 294-5 F 6-13 '15
- Concentric wire for interior lighting circuits. Il Elec W 65:177 Ja 16 '15
- Concentric wire; one of the hazards. C. W. Abbott. Elec R & W Elec'n 66:353 F 20 '15; Same. Elec W 65:716-17 Mr 30 '15
- Concentric wiring. C. Wirt. Elec W 65:77-8 Ja 9 '15
- Concentric wiring. G. W. Borst. Elec W 65:516 F 27 '15
- Concentric wiring. L. Dolkart. Elec R & W Elec'n 66:545 Mr 20 '15
- Concentric wiring; abstract. D. S. Munro. Il Elec W 66:411 Ag 21 '15
- Concentric wiring discussed. Elec W 66:445-6 Ag 28 '15
- Concentric wiring; discussion by electrical interests. Elec W 65:185-6 Ja 16 '15
- Concentric wiring in Great Britain. A. H. Seabrook. Il Elec W 65:1156-7 My 8 '15
- Concentric wiring; possible dangers. R. B. Benjamin. Elec W 65:389-90 F 13 '15
- Concentric wiring; report by committee of National fire protection association. Elec R & W Elec'n 66:244 F 6 '15
- Concentric wiring; report of special committee of electrical interests. Elec R & W Elec'n 66:112-14 Ja 16 '15
- Concentric wiring rules; preliminary draft. Elec W 65:365-6 F 6 '15
- Conduit installation in gas-engine factory; plant of Woodward motor company. Il Elec R & W Elec'n 66:583-4 Mr 27 '15
- Connector for electric wires. Il Elec W 66:996 O 30 '15
- Cutting hole in plaster wall for distribution cabinet. A. Gorman. Il Elec W 66:208 Jl 24 '15
- Elaborate temporary wiring installation; provisions for electric illumination of the outdoor performance of Siegfried given in the Harvard stadium at Cambridge, Mass. Il Elec W 66:474-5 Ag 28 '15
- Electric wiring. G. C. Shaad. Elec W 65:1067-8, 1326-7 Ap 24, My 22 '15
- Electric wiring in new Bureau of engraving and printing, Washington. D. C. El. C. Stanton. Il plan Elec W 66:688-9, 744-6 S 25-O 2 '15
- Electrical equipment rules. Colliery 35:678+ Jl '15
- Electrical manufacturers discuss cheaper wiring. Elec R & W Elec'n 65:1226-7 D 26 '14
- Evolution of concentric wiring. S. E. Doane. Elec R & W Elec'n 66:489-90 Mr 13 '15; Same. Elec W 65:696-7 Mr 13 '15
- Feeder protective system. Il diags Elec W 65:991-2 Ap 17 '15
- First installation of bare concentric wiring in America. Il Elec W 66:796-8 O 9 '15
- German copper reserves in electric circuits. F. Loppé. Eng M 50:117 O '15
- Houses wired with concentric system in Boston. Elec R & W Elec'n 67:666 O 9 '15
- Installation of motors. M. F. Arloe. diags Elec R & W Elec'n 67:558-63 S 25 '15
- Interior wiring for lighting and power service. A. L. Cook. Power 41:601-5, 640-3, 666-71, 702-6, 736-8 My 4-Je 1 '15
- Interior wiring rules compared: an outline of the regulations followed in the United States, Germany and England. Elec W 64:1089-1108 D 5 '14
- Jumpers prevent service interruptions. Il Elec W 66:590 S 11 '15
- Master-switch lighting circuits. V. N. Heath. diags Elec W 65:811-13 Mr 27 '15
- Meeting of N. E. L. A. wiring committee. Elec R & W Elec'n 67:972-3 N 27 '15
- Meeting of N. E. L. A. wiring committee. Elec W 65:897-8 Mr 13 '15
- Method of breaking off tubes. A. Gorman. diags Elec W 65:1707 Je 26 '15
- Modern methods of electrical wiring; abstract. D. S. Munro. Elec W 65:789 Mr 37 '15
- N. E. L. A. committee report on the wiring of existing buildings. Elec W 65:1523-4 Je 12 '15
- National electrical code amended at conference in New York city. Elec R & W Elec'n 66:624-3 Ap 3 '15
- National electrical code wiring rules compared with the German and English rules. Elec R & W Elec'n 65:1081-9 D 5 '14

Electric wire and wiring—Continued

- Opposition to overhead wiring rules of Idaho public utility commission. Elec W 64:1184-5 D 19 '14
- Paprip metal molding and fittings therefor. II Elec R & W Elec'n 66:786-7 Ap 24 '15
- Permanent and effective grounding of concentric wire. C. W. Abbott. Elec R & W Elec'n 66:446-7 Mr 6 '15
- Precautions to be observed in inserting cartridge fuses. T. H. Reardon. diags Elec R & W Elec'n 66:683-4 Ap 10 '15
- Proposed system of wiring. R. B. Benjamin. Elec R & W Elec'n 66:353-4 F 20 '15
- Questions and answers on the National electrical code. Published in the Electrical review and western electrician
- Resistance wires. R. F. Hunt. Metal Ind n s 13:420-1 O '15
- Running conductors to side outlets in finished-building wiring. T. Croft. diags Elec R & W Elec'n 66:1213-15 D 26 '14
- Safer and cheaper wiring systems. W. H. Blood, jr. Elec W 65:76 Ja 9 '15
- Skin effect in bimetallic wires. J. M. Miller. Elec W 65:1612-13 Je 19 '15
- Small lighting consumer. J. R. Cravath. Elec W 65:148-9 Ja 16 '15
- Solving the difficulty of galvanic action between steel and copper spans. Elec W 65:610 Mr 6 '15
- Specification form for residence wiring. Elec R & W Elec'n 66:1194-6 Je 26 '15
- Standardization of plugs and receptacles. II Elec W 65:667-8 F 27 '15
- Status of bare concentric wire. Elec W 66:1181-2 N 27 '15
- Substitutes for copper in Germany. Elec W 66:1040 N 6 '15
- Substitution of iron for copper wires in Germany; abstract. G. Dettmar. Elec W 65:218 Ja 23 '15
- Temperature rise in twin flexible wires. S. W. Melsom and H. C. Booth. diags Inst E E J 53:21-9 D 1 '14
- Underwriters passive on concentric wiring and refillable fuses. Elec W 65:831 Mr 27 '15
- Wiring an old frame building at \$3 an outlet. II diag plans Elec W 65:240-3 Ja 23 '15
- Wiring and conduit work at the Panama-Pacific exposition. A. A. Willoughby. II diags Elec R & W Elec'n 67:365-8, 432-5, 472-4 Ag 28-S 11 '15
- Wiring for colliery electric lighting; abstract. G. S. Corlett. Elec W 65:1426 My 29 '15
- Wiring layout for auxiliaries at Cleveland municipal plant. A. D. Williams. plan Power 43:296-7 Ag 31 '15
- See also* Electric cables; Electric conductors; Electric conduits; Electric distribution; Electric inspection; Electric lighting; Electric lines; Electric railroads—Wiring; Electric transmission; Insulation; Trolley wire
- Cost**
- Cost of wiring and conduit work. Elec R & W Elec'n 66:585 Mr 27 '15
- Labor costs in interior construction. L. W. Moxey, jr. Elec W 66:924-7 O 23 '15
- Lynn house-wiring campaign; schedule of prices. II Elec W 66:539-40 S 4 '15
- Terminology**
- Electric wire and cable terminology. II U S Bur Stand Circ 37:1-13 '15
- Testing**
- Voltage and insulation-resistance tests for wires of various sizes. Elec W 65:1050 Ap 24 '15
- Electrical and gas association, Southwestern. See Southwestern electrical and gas association
- Electrical code, National. See National electrical code
- Electrical contractors' association of the state of Illinois
- Semi-annual convention, Chicago, Jan. 15 and 16. Elec R & W Elec'n 66:154 Ja 23 '15
- Electrical contractors' association of Wisconsin 12th annual meeting. Elec R & W Elec'n 66:152-3 Ja 23 '15
- Electrical development, Society for. See Society for electrical development

- Electrical engineers, American Institute of. See American institute of electrical engineers
- Electrical inspectors, National association of. See National association of electrical inspectors
- Electrical propulsion. See Ship propulsion, Electric
- Electrical prosperity week**
- Arrangements for celebration. Elec W 66:1165-6 N 20 '15
- Campaign. II Elec W 66:216, 508-9 JI 24, S 4 '15
- Celebration features of electrical prosperity week unique and interesting. Elec R & W Elec'n 67:981-2 N 27 '15
- Denver company conducts strenuous prosperity week campaign. Elec R & W Elec'n 67:970 N 27 '15
- Developments in plans for nation-wide celebration. Elec W 66:795 O 9 '15
- Electrical prosperity week districts. map Elec W 65:1649 Je 19 '15
- Electrical prosperity week—its mission—and how you can profit. II map Elec R & W Elec'n 67:829-34 N 6 '15
- Meeting of the advisory committee. Elec R & W Elec'n 67:120 JI 17 '15
- National electrical week. S. M. Kennedy. Elec W 65:558-9 Mr 6 '15
- Plans. Elec R & W Elec'n 67:183 JI 24 '15
- Sectional committees. Elec W 65:1570-1 Je 12 '15
- Suggested national electrical week. Elec W 65:183, 276-8 Ja 16, 30 '15
- Suggestion advanced for a national electrical week. Elec R & W Elec'n 66:170 Ja 23 '15
- What the dealer and the contractor can do to cash in on electrical prosperity week. Elec R & W Elec'n 67:797-800 O 30 '15
- Your program for electrical prosperity week. E. E. Whitehorse. II Elec W 66:515-18 S 4 '15
- Electrical safety code, National. See National electrical safety code
- Electrical supplies, Associated manufacturers of. See Associated manufacturers of electrical supplies
- Electrical supply jobbers' association
- History and list of members. Elec R & W Elec'n 66:523-4 Mr 20 '15
- Summer meeting, Niagara Falls, Sept. 14-16. Elec W 66:623 S 18 '15
- Electricians**
- Electrician's registration bill becomes law in Massachusetts. Elec R & W Elec'n 66:1151-2 Je 19 '15
- Examination of electricians in Massachusetts. Elec R & W Elec'n 67:364 Ag 23 '15
- Massachusetts electricians' licensing bill. Elec W 65:1575 Je 12 '15
- Rules of New York city board for licensing electricians. Elec R & W Elec'n 67:606 O 3 '15
- Electricity**
- Analogies between electricity and mechanics. W. S. Franklin. Met & Chem Eng 13:317 My '15
- Dr. Edward Weston's achievements in the field of electricity. C. Hering. J Ind & Eng Chem 7:263-4 Mr '15
- Electricity of rain; abstract. G. C. Simpson. Elec W 66:261 JI 31 '15
- Future possibilities of electricity. C. Hering. Sci Am 113:490-1 D 4 '15
- Recent researches in electricity at the Bureau of standards. E. B. Ross. II plan J Fr Inst 180:539-59 N '15
- Static electricity in a textile mill. W. T. Estlick. II Elec R & W Elec'n 67:231 Ag 7 '15
- See also* Armatures; Contact electricity; Dynamos; Electrons; Induction coils; Insulation; Ionization of gases; Ions; Lightning; Magnetism; Radioactivity; Telegraph; Telephone; Telpheage; Wireless telegraph; X rays; also headings beginning Electric and Electro
- Terminology**
- Standardization rules of the American institute of electrical engineers; approved by the board of directors, June 30th, 1915, to take effect July 1, 1915. Am Inst E E Pro 34:1933-2041 Ag '15
- See also* Electric symbols; Electric units; Electric wire and wiring—Terminology

- Electricity, Sale of.** See **Electric service companies**
- Electricity, Solar**
Attempt to measure the free electricity in the sun's atmosphere. G. B. Hale and H. D. Babcock. *Sci Am* 113:183 Ag 28 '15
- Electricity in agriculture.** See **Electricity on the farm**
- Electricity in bakeries**
1800 pies an hour: electrically operated machine. *Il Elec W* 65:419 F 13 '15
Electricity in bakeries. *Il Elec R & W Elec'n* 66:715-21 Ap 17 '15
- Electricity in construction work**
Diesel engine for the contractor—why not? H. D. Hammond. *Il Eng Rec* 71:409-10 Mr 27 '15
Electricity in Boston Tech building construction. *Il Elec W* 65:1068-9 Ap 24 '15
- Electricity in foundries**
Economics of motor drive. H. F. Stratton. *Iron Tr R* 55:527-30+ S 17 '14; Same cond. *Elec R & W Elec'n* 65:827-8 O 24 '14; Abstract. *Ind Eng* 14:408-6 O '14
Electrical construction in machine shops and foundries. N. G. Meade. *diags Elec R & W Elec'n* 67:16-18 Jl 8 '15
Industrial control in the foundry. R. H. McLain. *Il Am Inst E E Pro* 34:587-97 Ap '15; Same. *Foundry* 43:201-3 My '15; Abstract, with discussion. *Elec R & W Elec'n* 68:777-8 Ap 24 '15; Discussion. *Am Inst E E Pro* 34:2984-96 D '15
Selection of electric motors and controllers. S. H. Libby. *Foundry* 43:60-3 F '15
See also **Electric furnaces**
- Electricity in horticulture.** See **Electrohorticulture**
- Electricity in mining**
Central-station power in coal-mining operations. T. R. Hay. *Il Eng M* 48:833-48 Mr '15
Electrical developments in mining in 1914. *Il Eng & Min J* 99:277-8 F 6 '15
Electrical equipment rules. *Colliery* 35:678+ Jl '15
Electricity applied to mining. C. P. Sparks. *diags plans Inst E E J* 53:389-430; Discussion. 53:430-8, 649-76 Mr 15, My 1 '15
Electricity in a coal-handling plant. R. M. Hale. *Il Elec R & W Elec'n* 65:1165-8 D 19 '14
Electricity in mining service. *Elec W* 65:1226 My 15 '15
Energy supply on the Rand; abstract. B. Price. *Elec W* 65:1683-4 Je 26 '15
Explosion-proof apparatus. W. Baum. *Am Inst E E Pro* 34:2680-6 N '15
Influence of inflammable mine gas upon the design of motors for mine service. H. H. Clark. *Am Inst E E Pro* 34:2686-9 N '15
Large electric hoist for Montana mine. *Elec R & W Elec'n* 67:943-4 N 20 '15
Mine motors, with special reference to electric motors. E. Drennen. *Colliery* 35:241-5 D '14
Mining loads for central stations. W. Sykes and G. Bright. *Colliery* 35:477-9 Ap '15
Operations in the New River field. W. Z. Price. *Il Colliery* 35:533-4 My '15
Permissible explosion-proof electric motors for mines; conditions and requirements for test and approval. H. H. Clark. *Il U S Bur Mines Tech Pa* 101:1-14 '15
Power supply of the Central mining-Rand mines group. J. H. Rider. *Il diags Inst E E J* 53:609-32; Discussion. 53:633-40, 736-43, 838-43 My 1-15, Je 15 '15
Safe use of electricity in coal mining. W. M. Thornton. *Sci Am* S 78:398-400 D 19 '14
Shot firing in coal mines by electric circuit from the surface. G. S. Rice and H. H. Clark. *Am Inst Min E Bul* 94:2563-71 O '14; Discussion. 100:885-91 Ap '15
Tom Hunter, hoisting engineer. W. O. Rogers. *Il Power* 40:16-18, 188-90, 922-4 Jl 7, Ag 4, D 29 '14
Tramming and hoisting at Copper Queen mine. G. F. G. Sherman. *Il diags Am Inst Min E Bul* 105:1837-85 S '16
2400-volt railway of the Bethlehem-Chile iron mines company. E. E. Kimball. *Gen Elec R* 18:12-14 Ja '15
- Use of electricity in mining work. D. B. Rushmore. *Il Gen Elec R* 18:527-39 Je '15
See also **Locomotives, Mine; Mining engineering; Mining machinery**
- Electricity in refrigeration**
Artificial ice plants operating in conjunction with small central stations. H. Hechheimer. *Elec R & W Elec'n* 65:1168-9 D 19 '14
Electricity in a cold-storage plant. *Il Elec R & W Elec'n* 67:357-9 Ag 23 '15
Making ice with purchased electric power. C. A. Tripp. *Il Munic Eng* 43:294-6 My '15
- Electricity in the automobile industry**
Electricity in the automobile industry. F. M. Kimball. *Gen Elec R* 18:550-2 Je '15
- Electricity in the home**
Chimneyless electrical suburb near Glasgow, Scotland. *Il Elec W* 66:970 O 30 '15
Domestic uses of electricity around Boston. *Il Elec W* 66:968-70 O 30 '15
Electric heating and heating appliances. C. P. Randolph. *Il Gen Elec R* 18:523-6 Je '15
Electrical contractor who practices what he preaches. *Il Elec R & W Elec'n* 67:431 S 4 '15
Electricity in the modern nursery. *Il Elec W* 66:990 O 30 '15
Electricity on a country estate. *Il Elec W* 66:476-8 Ag 28 '15
Home electrical at the Panama-Pacific international exposition. D. C. Shafer. *Il plan Gen Elec R* 18:572-8 Je '15; Same cond. *Elec R & W Elec'n* 66:1041-3 Je 5 '15
What the customer wants to know concerning the cost of using appliances. *Elec W* 66:980-1 O 30 '15
See also **Electric bells; Electric cooking; Electric heating; Electric stoves; Electric toasters; Electric water heaters; Washing machines, Electric**
- Electricity in war**
Electricity in present-day warfare. *Il Sci Am* 113:494+ D 4 '15
- Electricity on ships**
Application of electricity in naval warfare. H. L. Hibbard. *Il Sibley J* 29:251-61 My '15
Electric heating as applied to marine service. C. S. McDowell and D. M. Mahood. *Am Inst E E Pro* 33:861-72 Je '14; Discussion. 33:1891-5 D '14
Electrical equipment of a battleship. H. A. Hornor. *Elec R & W Elec'n* 66:671-2 Ap 10 '15
Electrical equipment of the Argentine battleship Moreno. H. A. Hornor. *Il diags Am Inst E E Pro* 33:1543-68 O '14; Summary. *Elec W* 64:752-8 O 17 '14; Discussion. *Am Inst E E Pro* 34:679-94 Ap '15
Electricity in marine work. M. W. Day. *Il diag Gen Elec R* 18:504-22 Je '15
Electricity on board ship. J. E. Bullard. *Int Marine Eng* 20:63-4 F '15
Electricity on board ship: the Aquitania's equipment. J. Lowson. *Elec R & W Elec'n* 65:1189 D 19 '14
Latest developments in marine electrical engineering. H. A. Hornor. *Int Marine Eng* 20:201-3 My '15
Scottish local section; chairman's address. J. Lowson. *Inst E E J* 53:37-42 D 1 '14
Standard marine electrical installations. H. A. Hornor. *Il diags Am Inst E E Pro* 34:1515-48 Ag '15
Use of electricity in ships. *Sci Am* S 80:39 Jl 17 '15
See also **Ship propulsion, Electric**
- Electricity on the farm**
Analysis of central-station practice in Wisconsin regarding rural service. *Elec R & W Elec'n* 66:237-9 F 6 '15
Application of electricity to agriculture. *Il Engineer* 119:260-1 Mr 12 '15
Electric service on the farm. *Elec R & W Elec'n* 67:178-9 Jl 31 '15
Electricity in agriculture. C. J. Rohrer. *Il Gen Elec R* 18:483-96 Je '15; Same. *Sci Am* S 80:264-6, 278-9 O 23-30 '15
Electricity in rural districts: threshing in an Iowa community. *Il Elec R & W Elec'n* 66:148-9 Ja 23 '15
See also **Electrohorticulture**

- Electricity supply**
Centralization of London energy supply. *Elec W* 64:1137 D 12 '14
Supply of the Netherlands with electric energy. *Elec R & W Elec'n* 67:30 J1 8 '15
- Electrification of railroads.** See Railroads—Electrification
- Electricity**
Osborn electricity; electrically propelled chair. O. E. Thomas. *Il Gen Elec R* 18:299-300 Ap '15
- Electrocardiograph**
Instrumental study of the heart. *Il Sci Am* 112:630-1+ Je 26 '15
- Electrochemical society, American.** See American electrochemical society
- Electrochemistry**
American electrochemical society, San Francisco meeting, Sept. 16-17. *Elec R & W Elec'n* 67:625-8 O 2 '15
American electrochemical society, 27th general meeting. *Elec R & W Elec'n* 66:821-4 My 1 '15
American electrochemical society, 27th general meeting. *Elec W* 65:1103-10 My 1 '15
American electrochemical society, 27th general meeting, Atlantic City. *Met & Chem Eng* 13:314-29 My '15
Contributions of the chemist to the electrochemical industry. W. S. Landis. *J Ind & Eng Chem* 7:944 N '15
Edward Weston's inventions. L. H. Baekeland. *por Sci Am S* 79:108-9 F 13 '15
Electric synthesis of colloids. J. Mukhopadhyaya. *Am Chem Soc J* 37:292-7 F '15
Electrochemical production of organic compounds. *Met & Chem Eng* 13:211-13 Ap '15
Electrochemistry in America. *Met & Chem Eng* 13:1-3 Ja '15
Electrochemistry in 1914. E. F. Roeber. *Elec W* 65:24-5 Ja 2 '15
Measurement of oxidation potentials at mercury electrodes: the stannic-stannous potential. G. S. Forbes and E. P. Bartlett. *Am Chem Soc J* 36:2030-40 O '14
Potential of silver against silver ion in concentrated solutions of potassium and of sodium chloride, and its relation to the activities of such solutions. G. S. Forbes and F. O. Anderegg. *Am Chem Soc J* 37:1876-85 J1 '15
Studies of a new kind of e. m. f. R. Beutner. *diags Am Chem Soc J* 36:2040-59 O '14
Year in the electrical industry. *Elec R & W Elec'n* 66:7 Ja 2 '15
- See also Chemistry, Physical; Dissociation; Electric batteries; Electric furnaces; Electrolysis; Electrolytes; Electrometallurgy; Ions; Passivity
- Electroculture of plants.** See Electrohorticulture
- Electrodes**
Charged surface layers formed on the electrodes of vacuum tubes; abstract. K. T. Compton and L. W. Ross. *Elec W* 66:1210 N 27 '15
Design, construction, and operation of electric furnaces. D. A. Lyon and J. F. Cullen. *diags U S Bur Mines Bul* 77:41-71 '14
Electric furnace electrodes—their manufacture and use. C. A. Barnett. *Il diags Sibley J* 30:27-32 O '15
Ferro-ilmenite arc on alternating-current circuits. L. Ladoff. *Elec R & W Elec'n* 66:371-2 My 8 '15
Influence of the potassium ion upon the potential of the ferrocyanide-ferricyanide electrode; abstract. E. P. Schoch and W. A. Felsing. *Met & Chem Eng* 13:563-9 S 1 '15
Measurement of oxidation potentials at mercury electrodes: the stannic-stannous potential. G. S. Forbes and E. P. Bartlett. *Am Chem Soc J* 36:2030-40 O '14
Potential of silver against silver ion in concentrated solutions of potassium and of sodium chloride, and its relation to the activities of such solutions. G. S. Forbes and F. O. Anderegg. *Am Chem Soc J* 37:1876-85 J1 '15
Potential of the rubidium electrode. G. N. Lewis and W. L. Argo. *diag Am Chem Soc J* 37:1983-90 S '15
- Reproducibility of the cadmium electrode.** F. H. Getman and V. L. Gibbons. *Il Am Chem Soc J* 37:953-70 My '15
- Electrodynamometer**
Weston portable electro-dynamometer instruments. *Il Int Marine Eng* 20:523 N '15; *Elec Ry J* 46:837 O 16 '15
- Electro-filters**
Improved diaphragm material—electro-filters. C. J. Thatcher. *Met & Chem Eng* 13:336-8 My '15
- Electroalvanizing.** See Galvanizing
- Electrograph**
Electric talking sign. *Elec R & W Elec'n* 66:1087 Je 5 '15
- Electrohorticulture**
Electro-culture: a resumé of the literature. H. R. Hosmer. *Gen Elec R* 18:14-21 Ja '15; *Sama. Sci Am S* 79:253-9 Ap 24 '15
Electro-culture of the soil. *Sci Am S* 79:151 Mr 8 '15
- Electrolysis**
Action of certain colloids on ions during electrolysis. A. Mutscheller. *diags Met & Chem Eng* 13:353-7 Je '15
Adjustment of the direct electric lighting current to electro-analysis. E. J. Kauffman. *plan Met & Chem Eng* 13:524-5 S 1 '15
Alternating current electrolysis. J. C. Ghosh. *diags Am Chem Soc J* 36:2333-46 N '14
Anhydrous hydrazine; electrolysis of a solution of sodium hydrazide in anhydrous hydrazine. T. W. B. Welsh. *diag Am Chem Soc J* 37:497-508 Mr '15
Battery assay of copper: report of subcommittee. *J Ind & Eng Chem* 7:546-7 Je '15
Coagulation of albumin by electrolytes. W. D. Bancroft. *Met & Chem Eng* 13:317-18 My '15
Copper leaching; discussion. L. D. Ricketta, and others. *Met & Chem Eng* 13:319-24 My '15
Electro-analysis of the second group metals; abstract. E. P. Schoch and D. J. Brown. *Eng & Min J* 100:521 S 25 '15; *Sama. Met & Chem Eng* 13:568 S 1 '15
Electrolysis of copper sulphate liquors, using carbon anodes. L. Addicks. *Il diag Met & Chem Eng* 13:748-55 O 15 '15
Electrolysis of solutions of the rare earths. L. M. Dennis and B. J. Lemon. *Am Chem Soc J* 37:181-7 Ja '15
Electrolysis of solutions of the rare earths. L. M. Dennis and P. A. Van der Meulen. *Am Chem Soc J* 37:1963-76 S '15
Electrolytic cell patents for the production of caustic soda and chlorine. *diags Met & Chem Eng* 13:815-16 N '15
Electrolytic endomose. H. G. Byers and C. H. Walter. *diags Am Chem Soc J* 36:2234-91 N '14
Electrolytic method of sewage disposal. J. C. Olsen. *Il Met & Chem Eng* 13:785-9, 798-7 O 15-N '15
Electrolytic precipitation of gold, silver and copper from cyanide solutions. G. H. Clevenger. *diags Met & Chem Eng* 13:803-6, 852-80 N 1-15 '15
Electrolytic production of caustic and chlorine. *diag Met & Chem Eng* 13:506 Ag '15
Electrolytic production of oxygen and hydrogen—a typical plant. *Il Elec R & W Elec'n* 66:1170-1 Je 19 '15
Electrolytic separation of zinc, copper and iron from arsenic. A. K. Balls and C. C. McDonnell. *J Ind & Eng Chem* 7:26-9 Ja '15
Gold precipitation on paper. D. Lay. *Eng & Min J* 100:276-7 Ag 14 '15
Influence of an alternating current on electrolysis by a direct current. J. C. Ghosh. *diags Am Chem Soc J* 37:733-52 Ap '15
Motion pictures of electrolysis. *Il Sci Am S* 80:340-1 N 27 '15
Revision of the atomic weight of cadmium: the electrolytic determination of cadmium in cadmium chloride. G. E. Baxter and M. L. Hartmann. *Am Chem Soc J* 37:113-31 Ja '15
Use of hydrofluoric acid in the separation of copper and lead from tin and antimony by means of the electric current. L. W. McCay. *Am Chem Soc J* 36:2375-81 N '14

Electrolysis—Continued

Zinc extraction by electrolysis. E. H. Leslie. Eng M 48:910-12 Mr '15

See also Electrochemistry; Electrodes; Electrolytes; Electrolytic corrosion; Electrometallurgy

Electrolytes

Coagulation of arsenious sulfide sol by electrolytes. J. Mukhopadhyaya. Am Chem Soc J 37:2024-31 S '15

Conductivity and viscosity of solutions of electrolytes in formamid. P. B. Davis, W. S. Putnam and H. C. Jones. Il diags J Fr Inst 180:567-601 N '15

Distribution of an electrolyte between water and some second solvent and its dissociation constant in aqueous solution. H: J. M. Creighton. J Fr Inst 180:63-74 JI '15

Improved diaphragm material—electro-filtros. C. J. Thatcher. Met & Chem Eng 13:338-8 My '15

Measurement of the conductivity of electrolytes; abstract. W. A. Taylor and H. L. Curtis. Elec W 66:187 JI 24 '15

Method for the calculation of the hydration of the ions at infinite dilution, and the ideal diffusion coefficient as applied to the hydro-diffusion of electrolytes. G: M. Smith. Am Chem Soc J 37:722-23 Ap '15

Relative migration velocities of the ions in complex electrolytes. A. Mutscheller. Met & Chem Eng 13:439-42 JI '15

Sensitive criterion of the precision and of constant errors in the conductance data of weak electrolytes, the determination of the molar conductance of organic electrolytes at zero concentration and a study of the correction for the specific conductance of the conductivity of water. C. G. Derick. Am Chem Soc J 36:2268-83 N '14

Solution stratification as an aid in the purification of electrolytes. F. R. Pyne. diag Met & Chem Eng 13:895-6 D 1 '15

See also Electric batteries; Electrochemistry; Electrodes; Electrolysis; Ions; Storage batteries

Electrolytic corrosion

Causes of corrosion of water pipes and other underground structures. W. W. Cole. Elec Ry J 45:186 Ja 23 '15

Corrosion of metals in natural soils. E. H. Scofield and L. A. Stenger. Il Elec Ry J 44: 1092-5 N 14 '14; Same cond. Eng M 48:588-91 Ja '15; Discussion. Elec Ry J 45:419-21 F 27 '15

Earth resistance and its relation to the electrolysis of underground structures. B. McCollum and K. H. Logan. J Fr Inst 180:814-15 N '15

Effects of electrolysis on engineering structures. A. F. Ganz. Elec Ry J 46:624-5 S 25 '15

Electrolysis—its detection and mitigation. B. McCollum. Elec R & W Elec'n 66:259-60 F 6 '15

Electrolysis mitigation. Am Gas Light J 103: 129-30 Ag 30 '15

Electrolysis mitigation. Am Gas Light J 103: 268 O 25 '15

Electrolysis mitigation in Springfield and New Elyria, Ohio. Elec R & W Elec'n 67:435 S 4 '15

Electrolysis of reinforced concrete. Am Gas Light J 101:864 D 7 '14

Electrolytic action of return currents. H. E. Yerbury. Engineer 119:264 Mr 12 '15

Electrolytic corrosion in pipes. Metal Work 84:302 S 3 '15

Electrolytic corrosion of iron in soils. B. McCollum and K. H. Logan. U S Bur Stand Tech Pa 25:1-69 '13; Abstract. J Fr Inst 180: 228-32 Ag '15

Galvanic corrosion damages hull of yacht. Eng N 74:522-3 S 9 '15

Insulation of underground piping. Elec R & W Elec'n 67:194 JI 31 '15

Mitigation of destructive effects of electrolysis on reinforced concrete, underground pipes and cable sheaths. Eng & Contr 42:291-5 S 23 '14

Overhead electrolysis and porcelain strain insulators. S. L. Foster. Il Am Inst E E Pro 34:1549-58 Ag '15; Abstract. Elec Ry J 46: 532-3 S 18 '15

Paints to prevent electrolysis in concrete structures. H: A. Gardner. Il J Fr Inst 179: 313-36 Mr '15; Same. J Ind & Eng Chem 7: 504-10 Je '15; Same cond. Iron Tr R 57: 139-40+ JI 15 '15; Abstracts. Eng N 73:136-7 Ja 21 '15; Eng Rec 71:465-6 Ap 10 '15; Am Soc M E J 37:297 My '15; Concrete Cem 6: 310 Je '15

Preventing corrosion from electrolytic action. Power 41:740-1 Ja 1 '15

Springfield (Mass.) electrolysis report. J. T. Harmer. Elec Ry J 45:507-8 Mr 13 '15

Tests show satisfactory return-circuit conditions in Providence, R. I. Elec Ry J 46:825-6 O 16 '15

See also Concrete, Effect of electricity on
Electromagnetic separation of ores. See Magnetic separation of ores

Electromagnetism

Developments in electromagnetism. E. Bloch. Sci Am S 79:338-9, 366-8 My 29-Je 5 '15

Electromagnetic radiation from the viewpoint of the electron theory. J. P. Minton. diags Gen Elec R 18:387-97 My '15

See also Electromagnets; Magnetization

Electromagnets

Calculation of electromagnet windings. E. E. George and H. Pender. Elec W 65:529-31 F 27 '15

Electro-magnet for removing particles of iron from the flesh. Il Mach 21:601 Mr '15; Elec R & W Elec'n 66:508 Mr 13 '15; Iron Age 95: 452 F 25 '15; Iron Tr R 56:525 Mr 11 '15; Sci Am S 79:168 Mr 13 '15

Electromagnets for alternating-current circuits. N. G. Meade. diags Power 41:14-16 Ja 5 '15; Correction. 41:203 F 9 '15

Experiments with a plunger electromagnet; determining the pull on the plunger when it is in motion. B. C. Batcheller. diag Elec W 65:1037-9 Ap 24 '15

Magnetization of iron at high flux density with alternating currents. J. S. Nicholson. Inst E E J 53:248-57; Discussion. 53:257-63 F 1 '15

Solenoid and electromagnet windings. G: L. Hedges. Am Inst. E E Pro 34:2595-614 N '15

See also Armatures; Commutators; Induction coils

Charging

Recharging magneto magnets. R. J. Everest. Il Automobile 32:414-15 Mr 4 '15

Electrometallurgy

Electric furnace and the melting of alloys. R. S. Wile. Iron Age 95:1068-9 My 13 '15

Electric furnace in metallurgical work. D. A. Lyon, R. M. Keeney, and J. F. Cullen. bib-log diags U S Bur Mines Bul 77:1-207 '14

Electricity in an ore-treating plant. Il Elec R & W Elec'n 66:481-4 Mr 13 '15

Electrolysis of copper sulphate liquors, using carbon anodes. L. Addicks. Il diag Met & Chem Eng 13:748-55 O 15 '15

Electrolytic antimony refining. A. G. Betts. Met & Chem Eng 13:848-51 N 15 '15

Electrolytic copper refining; abstracts of papers by A. C. Clark and L. Addicks. Met & Chem Eng 13:661-2 O 1 '15

Electrolytic precipitation of gold, silver and copper from cyanide solutions. G. H. Clevenger. diags Met & Chem Eng 13:803-6, 852-60 N 1-15 '15

Electro-metallurgical industries as possible consumers of electric power. D. A. Lyon and R. M. Keeney. Am Inst Min E Bul 104: 1707-30 Ag '15; Excerpts. Iron Age 96:360-2 Ag 12 '15; Discussion. Am Inst Min E Bul 103:2502-7 D '15

Hydro-electrolytic treatment of copper ores. R. R. Goodrich. Il Am Inst Min E Bul 104: 1551-94 Ag '15

Iron manufacture by electrolysis: methods commercially carried out in France. L. Guillet. Il Iron Age 94:1390-2 D 17 '14; Same. Sci Am S 79:70-1 Ja 30 '15

Electrometallurgy—Continued

- Making use of segregation in electrolytic tank. Eng & Min J 100:356 Ag '15
 Modern methods for producing and refining various metals. J. W. Richards. Sci Am S 79:378-9, 398-9 Je 12-19 '15
See also Cyanide process; Electric furnaces; Electrochemistry; Electrolysis; Electrolytic corrosion; Electroplating; Electrostatic separation of ores; Electrotyping; Magnetic separation of ores; Metallurgy; Smelting; Electric

Bibliography

- Electric furnace in metallurgical work. D. A. Lyon, R. M. Keeney, and J. F. Cullen. U S Bur Mines Bul 77:190-207 '14

Electrometer

- Highly sensitive electrometer; abstract. A. L. Parson. Elec W 66:1211 N 27 '15
 Vibration electrometer. H. L. Curtis. diags U S Bur Stand Bul 11:535-52 My 27 '16; Excerpts. Sci Am S 79:330 My 22 '15; Abstract. Elec R & W Elec'n 66:606-7 Mr 27 '15

Electromotive force

- Hydrogen- and hydroxyl-ion activities of solutions of hydrochloric acid, sodium and potassium hydroxides in the presence of neutral salts. H. S. Harned. diags Am Chem Soc J 37:2460-82 N '15
 Liquid junction potentials. D. A. MacInnes. Am Chem Soc J 37:3301-7 O '15
 Potential of silver in nonaqueous solutions of silver nitrate. V. L. Gibbons and F. H. Getman. bibliog diags Am Chem Soc J 36:1630-55 Ag '14
 Reducing power of photographic developers as measured by their single potentials. F. C. Frary and A. H. Nietz. diags Am Chem Soc J 37:2246-53 O '15
 Shape of the pressure wave in electrical machinery. S. P. Smith and R. S. H. Boulding. diags Inst E E J 53:205-38; Discussion. 53: 238-47, 323-5 F 1-15 '15
 Studies of a new kind of e. m. f. R. Beutner. diags Am Chem Soc J 36:2040-59 O '14

See also Concentration cells; Passivity

Electrons

- Application of the electron theory to various phenomena. J. P. Minton. bibliog Gen Elec R 18:287-95 Ap '15
 Atoms, molecules and electrons. N. W. Rakestraw. Sci Am S 80:254-6 O 16 '15
 Criticism of the electron conception of valence. R. F. Brunel. Am Chem Soc J 37:709-22 Ap '15
 Decrease of velocity of swiftly moving electrified particles in passing through matter; abstract. N. Bohr. Elec W 66:1042 N 6 '15
 Developments in electromagnetism. E. Bloch. Sci Am S 79:338 My 29 '15
 Electromagnetic radiation from the viewpoint of the electron theory. J. P. Minton. diags Gen Elec R 18:387-97 My '15
 Electron conception of valence: inorganic compounds. J. M. Nelson and K. G. Falk. Am Chem Soc J 37:274-86 F '15
 Electron conception of valence: the theory of electrolytic dissociation and chemical action. K. G. Falk and J. M. Nelson. Am Chem Soc J 37:1732-48 J1 '15
 Electron theory and metallic selenium crystals. Elec W 64:1152 D 12 '14
 Electron theory of electric conduction in metals. J. P. Minton. Gen Elec R 18:204-9 Mr '15
 Electronic conception of positive and negative valences. H. S. Fry. Am Chem Soc J 37:2368-78 O '15
 Electronic theories of the properties of metals. C. H. Lees. Sci Am S 80:320 N 13 '15
 Interpretations of some stereochemical problems in terms of the electronic conception of positive and negative valences. H. S. Fry. Am Chem Soc J 37:855-92 Ap '15
 Magnetron theory of atomic structure; abstract. D. L. Webster. Elec W 66:599-600 S 11 '15
 Pure electron discharge and its applications in radio telegraphy and telephony. L. Langmuir. diags Gen Elec R 18:327-39 My '15
 Theory of valency and molecular structure. W. C. Arsem. Am Chem Soc J 36:1655-75 Ag '14

See also Cathode rays; Ions; Radioactivity

Electrophysics

- Application of the electron theory to various phenomena. J. P. Minton. bibliog Gen Elec R 18:287-95 Ap '15
 Cathode rays and their properties. J. P. Minton. diags Gen Elec R 18:118-25 F '15
 Characteristics of cathode ray tubes. J. P. Minton. diags Gen Elec R 18:636-40 J1 '15
 Electromagnetic radiation from the viewpoint of the electron theory. J. P. Minton. diags Gen Elec R 18:387-97 My '15
 Electron theory of electric conduction in metals. J. P. Minton. Gen Elec R 18:204-9 Mr '15

See also Electric currents; Alternating; Electric precipitation; Electric units; Electric waves; Electrochemistry; Radioactivity; Radiography

Electroplaters' society, American. See American electroplaters' society**Electroplating**

- Action of certain colloids on ions during electrolysis. A. Mutscheller. diags Met & Chem Eng 13:353-7 Je '15
 Bronzing processes suitable for brass and copper. T. I. Baker. Metal Ind n s 13:464-5 N '15 (to be cont)
 Cleaning and plating in the same solution. O. P. Watts. Metal Ind n s 13:241-7 Je '15
 Copper cyanide plating solutions. M. C. Weber. Metal Ind n s 13:95-6 Mr '15; Same. Met & Chem Eng 13:265-6 Ap '15; Same. Foundry 43:197-8 My '15; Same. Sci Am S 79:302 My 8 '15
 Demonstration of metal cyanides at Lewis institute, Chicago, Ill. il Metal Ind n s 13: 124 Mr '15
 Determining weight of deposit. L. C. Wilson. il Metal Ind n s 12:206-7, 335-7, 505-6; 13: 152-4, 277-8 My, Ag, D '14, Ap, J1 '15 (to be cont)
 Digest of electrochemical U. S. patents prior to 1903. Publishing in Metallurgical and chemical engineer beginning with April, 1914
 Economy and efficiency of copper cyanide. C. H. Proctor. Foundry 43:199-200 My '15
 Efficiency, standardization's double. Metal Ind n s 13:379-80 S '15
 Electrolytic lead deposits. F. C. Mathers and A. McKinney. Met & Chem Eng 13:328 My '15
 Electroplaters' convention, June 3-5, Dayton, O. C. H. Proctor. Metal Ind n s 13:223-5 Je '15
 Electro-plating with cobalt. C. H. Buchanan and T. Haddow. Metal Ind n s 13:240-2 Je '15
 Electroplating with cobalt. H. T. Kalmus, C. H. Harper, and W. L. Savell. J Ind & Eng Chem 7:379-99 My '15; Excerpts (Conclusions). Met & Chem Eng 13:328-9 My '15; Elec R & W Elec'n 66:873 My 8 '15; Summary. Eng M 49:432-3 Je '15
 French process for electroplating mirrors with copper. il Elec R & W Elec'n 66:922-3 My 15 '15
 Making the silver solutions. O. A. Hillman. Metal Ind n s 13:416-17 O '15
 Modern acid-dipping, electroplating and japaning plant. H. N. Trumbull. il Gen Elec R 18:1121-6 D '15
 Modern plating equipment and supplies. E. S. Thompson. Metal Ind n s 12:153-4, 515 Ap, D '14
 New form of electroplating barrel. il Iron Age 96:979 O 28 '15
 Polishing and plating room practices reviewed. F. W. Hobbs. Metal Ind n s 13:414-15 O '15
 Preparation and operation of all lead plating baths. F. C. Mathers. Metal Ind n s 13:184-5 My '15
 Proper use of ammeter and voltmeter in the plating room. Metal Ind n s 13:67-8 F '15
 Relative migration velocities of the ions in complex electrolytes. A. Mutscheller. Met & Chem Eng 13:439-42 J1 '15
 Removing grease by electricity; the modern way to prepare metal articles for plating operations. T. Brown. Metal Ind n s 13: 192-4 My '15
 Testing of electro-plating solutions. diags Metal Ind n s 13:20-1 Ja '15

Electroplating—Continued

Twentieth century electro-plating plant; Spirella company's Niagara Falls, N. Y., installation. G. W. Grupp. *Il Metal Ind* n s 13: 331-2 Ag '15

Unit energy consumption in electroplating establishment. *Il Elec W* 66:804 O 9 '15

Voltmeter and ammeter in the plating room. S. E. Huenerfauth. *Metal Ind* n s 13:71 F '15

See also Electrometallurgy; Galvanizing; Nickel plating; Silver plating

Electroscope

Practical methods for the determination of radium. S. C. Lind. *Il diag J Ind & Eng Chem* 7:406-10 My '15

Electrostatic potential and synchronism indicators. *Il Elec Ry J* 48:326 Ag 21 '15; *Elec R & W Elec'n* 67:251-2 Ag 7 '15; *Elec W* 66: 310-11 Ag 7 '15; *Power* 42:271-2 Ag 24 '15

Electrostatic separation of ores

Electrostatic ore separation. I. C. Clark. *Eng & Min J* 98:264-7 Ag 8 '14; *Same*. *Sci Am S* 80:173-4 S 11 '15; *Same cond.* *Eng M* 48: 105-8 O '14

Electrotherapeutics

See also Radiotherapy

Electro-thermostatic control

Electro-thermostatic control of radiators. *Sci Am* 112:364+ Ap 17 '15

Electrotyping

Preliminary circular of information regarding testing of electrotyping solutions issued by the Bureau of standards. *Inland P'r* 54:391-2 D '14

Regulation of electrotyping solutions. *diag U S Bur Stand Circ* 52:1-12 '15; *Abstract. Met & Chem Eng* 13:258-60 Ap '15

See also Stereotyping

Elements, Chemical. See Chemical elements**Elephant Butte dam**

Closure made at Elephant Butte dam, New Mexico. *Eng Rec* 71:274 F 27 '15

Concreting methods and records, Elephant Butte dam. E. H. Baldwin. *diag Eng N* 74: 695-8 O 7 '15

Excavation for foundation of Elephant Butte dam. E. H. Baldwin. *Il diag plan Eng N* 73:49-54 Ja 14 '15

Placing masonry for the Elephant Butte dam, New Mexico. E. H. Baldwin. *Il diag Eng N* 74:645-9 S 80 '15

Elevated railroads

Derrick car for elevated-railway reconstruction. J. M. Ryan. *Il diag Eng N* 73:986-7 My 20 '15

Design of steel elevated railways, N. Y. rapid transit system. M. E. Griest. *Il diag Eng N* 73:971-7 My 20 '15

Full-load secondary stresses in elevated railway bents. L. R. Manville. *Eng N* 74:949-51 N 11 '15

How some problems in the New York elevated improvement work were solved. *Il diag Eng Rec* 71:781-3 Je 19 '15

Laying new track under an old elevated railway platform. *diag Eng N* 73:1180-1 Je 17 '15

Mile and a half of track on New York elevated line rebuilt in fourteen days. *Il Eng Rec* 72:368-4 S 18 '15

Ornamental concrete elevated railway, New York city. M. E. Griest. *Il diag Eng N* 74: 913-18 N 11 '15

Railroad building under and over the streets of New York. *Il map Sci Am* 118:142-3+ Ag 14 '15

Rapid steel erection on third track work, Second avenue elevated, New York. *Il diag Eng Rec* 71:86-7 Ja 18 '15

Rebuilding elevated railways in New York city. *Il diag plan map Eng N* 74:625-30, 628-7 S 80-O 7 '15

Safety of trains on the Chicago elevated. *Il Elec Ry J* 46:302-5 Ag 21 '15

Section of New York elevated rebuilt under heavy traffic without an accident. *Il map Eng Rec* 72:470-2 O 16 '15

Temporary support for an elevated-railway bent. E. L. Dym. *Il Eng N* 74:122-3 J1 15 '15

Track-raising in building a hump station, New York elevated lines. *Il diag Eng N* 74: 269-71 Ag 5 '15

Typical and special construction used on Queens extension to New York elevated. *Il diag Eng Rec* 72:76-8 J1 17 '15

Word about elevated railroads in general. *Elec Ry J* 45:71-2 Ja 2 '15

Stations

Architectural treatment of special elevated stations of the dual system, New York city. S. J. Vickers. *Il Am Inst Arch J* 3:501-2 N '15

Stations for third track, New York elevated, placed above existing platforms. *Il diag Eng Rec* 72:138-9 J1 31 '15

Elevator lobbies

Types of elevator lobbies in office buildings. C. F. Baker. *Il plans Arch Rec* 38:631-40 D '15

Elevators

Elevator-rail greaser. *diag Power* 41:82-3 Ja 19 '15

Hydraulic elevators shut down by broken gate valve. *diag Eng N* 74:574 S 16 '15

Notes on elevator pumps. T. J. Rogers. *diag Power* 41:741-2 Je 1 '15

Seventy years of inventions. *Il Sci Am* 112: 515 Je 5 '15

See also Hoisting machinery

Safety devices

Maximum rate of safe retardation for passenger cars and elevators. *Eng N* 72:1132-3 D 3 '14

Sixth award of the Scientific American medal for safety devices. W. H. Tolman. *Il Sci Am* 112:174 F 20 '15

When the elevator runs away. *Il Sci Am* 113: 274 S 25 '15

Elevators, Electric

Automatic electric elevator dispatcher. N. G. Meade. *diag Power* 41:540-1 Ap 20 '15

Characteristics of direct-current motors for elevator service. A. Brunt. *Il Am Inst E E* Pro 34:2767-82 N '15

Electric elevator. H. D. James. *Am Inst E E* Pro 34:3008-11 D '15

Electric elevators, operation and maintenance. A. C. Bender. *Il diag Elec R & W Elec'n* 66:947-52, 985-9, 1060-2 My 22-Je 5 '15

Line disturbance caused by special squirrel-cage and wound-rotor motors when starting elevators and hoists. J. C. Lincoln. *diag Am Inst E E* Pro 34:421-31 Mr '15; *Discussion*. 34:2847-50 N '15

Modern electric elevator and elevator problems. D. Lindquist. *Il diag Am Soc M E J* 37:309-24 Je '15; *Abstracts*. *Power* 41:656-7 My 11 '15; *Elec W* 65:1011-12 Ap 17 '15; *Discussion*. *Am Soc M E J* 37:324-33 Je '15

Rational basis of comparison of the duties of electrical elevators and hoisting engines. A. M. Coyle. *Am Soc M E J* 37:395-400 J1 '15

Elevators, Grain. See Grain elevators**Elevators, Inclined**

Inclined elevators increase economy of marine terminals. *Il Int Marine Eng* 20:119 Mr '15

Eglin, Illinois**Water supply**

Experience with artesian well water. R. R. Parkin. *Am Water Works Assn J* 2:407-9 Je '15

Elliot, Charles William, 1834-

Appreciation. M. Benjamin. *por Sci Am S* 78: 411 D 28 '14

Ellen Wilson memorial homes, Washington, D. C.

Town planning and housing. G. B. Ford. *Il plans Am Inst Arch J* 3:352-7 Ag '15

Ellipses

Method of drawing an ellipse. A. W. Schoof. *diag Mach* 21:496-7 F '15

Simple method of drawing ellipses. *diag Eng & Min J* 99:1080 Je 19 '15

Elm trees

Hickories, elms and ash trees. W. H. Miller. *Il Am For* 21:719-29 Je '15

Eutritators

Air analyzer for determining the fineness of cement. J. C. Pearson and W. H. Sligh. *Il diags U S Bur Stand Tech Pa* 48:1-74 '15; Summary. *J Fr Inst* 179:712-14 Je '15; Summary. *Eng Rec* 71:737 Je 12 '15

Embankments

Building the earth embankment for Hill View reservoir. A. W. Tidd. *Il plan Eng N* 74: 500-5 S 9 '15

Cutoff-wall and rock grouting at the Milton reservoir embankment. *Il diags map Eng N* 73:468-71 Mr 11 '15

Earth embankment and fill at Shopton, Iowa. *Il plan Eng N* 72:1172-3 D 10 '14

Earth fill replaces trestle for irrigation canal. *Il diags Eng Rec* 71:525-6 Ap 24 '15

London county hall. *diags Engineer* 120:147-8 Ag 18 '15

Railroad subgrade troubles—preventives and cures. J. T. Bowser. *Eng Rec* 73:203-4 Ag 14 '15

Simple construction reclaims 7000 acres of rich land at low cost, Pitt Meadow, B. C. H. M. Burwell. *Il diag map Eng Rec* 72:330-1 S 11 '15

See also Sea walls

Embargo

British wool embargo. *Textile World* 48:559-63 Mr '15

Details of rubber embargo lifting. *Horseless Age* 35:222-3 F 17 '15

Embezzlement

Defalcations. L. U. Crawford. *J Account* 20: 112-21 Ag '15

Embossing (typography)

Electrically heated embossing block. *Il Elec W* 66:995 O 30 '15

Embozo sales company protests. W. B. Westlake. *Inland Ptr* 54:357-8 D '14

Outgrowths of letterpress. G. Sherman. *diag Inland Ptr* 54:197-200, 343-6 N-D '14

Embroidery patterns

Outgrowths of letterpress: transfer and perforated embossing patterns. G. Sherman. *Il Inland Ptr* 54:343-6 D '14

Emery

Emery around a dynamo. B. J. Oppenheim. *Power* 41:275-6 F 23 '15

Emery around a dynamo. W. Weaver. *Power* 40:355 D 15 '14

See also Grinding and polishing

Emery wheels

Constructing emery wheel exhaust heads. *diags Metal Work* 82:787-9 D 18 '14

Emery tool grinder for patternmakers. C. Murphy. *diag Foundry* 43:300 Ag '15

New safety hood for emery wheels. *Il Iron Age* 95:244 Ja 28 '15

Origin of the emery wheel. *Il Engineer* 119: 608-9 Je 18 '15

See also Grinding wheels

Emissivity. See Radiation**Emmet, William Le Roy, 1859-**

Sketch. *por Eng M* 50:216-17 N '15

Empire state gas & electric association

New York state convention, Schenectady, May 6-8. *Elec W* 65:1267-9 My 15 '15

Employees

Advertising influence of employees. F. R. Slater. *Elec R & W Elec'n* 68:1147-8 Je 19 '15; Same. *Am Gas Light J* 103:149-50 S 6 '15; Abstract. *Elec Ry J* 45:1029 My 29 '15

Best methods of dealing with men. H. E. Gamble. *Ry Age (Mech ed)* 89:61 F '15

Business efficiency and the human element. M. Chapman. *Metal Work* 84:71-2 Ji 16 '15

Business relations of salesman and employer. F. Farrington. *Metal Work* 84:578-9 N 5 '15

Can employer state his opinion of employee? E. J. Buckley. *Metal Work* 84:687 N 26 '15

Card record of employees. C. E. Fairbanks. *Eng M* 48:573-5 Ja '15

Card record of employees. S. G. Koon. *Eng M* 49:88-90 Ap '15

Contractor's method for holding good men. M. C. Tuttle. *Eng N* 73:694-5 Ap 8 '15

Examining the physique of Chicago elevated employees. H. E. Fisher. *Il Elec Ry J* 46:216-19 Ag 7 '15

How to keep men in your employ. W. A. Grievess. *Iron Tr R* 57:488-9+ S 9 '15

How to keep your men healthy. S. C. Coey. *Iron Tr R* 56:389-80 F 18 '15

Human element. J. Hartness. *Iron Age* 94:1297 D 3 '14; Same. *Metal Work* 82:780 D 11 '14; Same. *Am Gas Light J* 102:17-18 Ja 11 '15; Same. *Am Soc M E J* 37:2-3 Ja '15

Human factor in production. A. A. Dowd. *Iron Tr R* 55:1186+ D 24 '14

Human nature and successful shop management. R. T. Gebler. *Metal Work* 82:323-4 D 25 '14

Making of men, motor cars and profits. O. J. Abell. *Il Iron Age* 95:33-41+ Ja 7 '15

Periodic physical examination of employees. E. L. Fisk. *Am Ind* 15:21-3 F; 23-3 Je '15

Physical control of employees. *Eng & Min J* 100:759 N 6 '15

Physician in industry; how the science of preventive medicine is minimizing accidents. S. M. McCurdy. *Iron Age* 95:401 F 18 '15; Same. *Sci Am S* 79:265 Ap 24 '15

Selling stock to employees. C. F. McElroy. *Inland Ptr* 56:182-4 N '15

Three position plan of promotion. F. B. Gilbreth and L. M. Gilbreth. *Iron Age* 96:1057-9 N 4 '15

Training and holding competent employees. F. Mappes. *Metal Work* 82:731-3 D 4 '14

Where the money goes. R. O. Wye. *Elec R & W Elec'n* 65:1210-11 D 28 '14

Word to managers about their men. W. Gould. *Elec W* 66:536-8 S 4 '15

See also Apprentices; Employment systems; Foremen; Industrial betterment; Welfare work in industry

Employees, Government. See Government employees

Employees, Training of

Improvement of distribution employees. C. E. Reinicker. *Il Am Gas Inst Pro* 9:pt 2, 1242-1302 '14; Same cond. *Am Gas Light J* 102: 33-9 Ja 18 '15; Discussion. *Am Gas Inst Pro* 9:pt 2, 1302-10 '14

See also Apprentices; Corporation schools; Schools and shops, Cooperation of

Employers' associations

Commercial organizations in the United Kingdom with a description of British manufacturers' and employers' organizations. A. J. Wolfe. *U S Bur For & Dom Com* 102:41-53 '15

Employers' organizations versus those of employees. H. Bryant. *Inland Ptr* 54:493-5 Ja '15

Employers' liability

Employees' injuries and what they cost. A. L. H. Street. *Iron Age* 95:481-2 F 25 '15

See also Workmen's compensation

Employment agencies

See also Labor exchanges

Employment systems

Choosing and training the college engineer. *Iron Age* 95:1112-13 My 20 '15

Cost of failures on your pay roll. E. St. E. Lewis. *Iron Tr R* 56:182 Ja 21 '15

Employment bureau. H. G. Winsor. *Elec Ry J* 46:9-10 Ji 3 '15

Fundamentals involved in the help problem. C. F. Raymond. *Am Ind* 15:28-9 Ja '15

Greater care in employing workmen will pay the contractor. H. D. Hammond. *Eng Rec* 71:501-2 Ap 17 '15

Hiring and firing: the economic waste and how to avoid it. M. W. Alexander. *Am Ind* 16:17-22 Ag '15; Excerpt. *Ry R* 57:286-7 Ag 28 '15

How do you select and promote your men. R. V. Wright. *Ry Age* 59:281-3 Ag 6 '15; Same. *Ry Age (Mech ed)* 89:387-9 Ag '15

Human raw material and finished product. J. M. Mackay. *Metal Work* 83:183 Ja 29 '15

Irregular employment; cost and causes. H. S. Dennison. *Am Soc M E J* 37:280-1 My '15

Neglected principle of the safety first movement: proper selection of trainmen. C. J. Franklin. *Elec Ry J* 44:1244-6 D 5 '14

Plan for improving the position of railway clerks. *Ry Age* 59:387 N 12 '15

Employment systems—Continued

Selecting the right occupation. Eng N 74:321-2 Ag 12 '15

Supervisor of personnel and his functions. E. M. Hopkins. Ind Eng 15:7-11 Ja '15; Summary. Iron Age 94:1371-2 D 10 '14

Waste in hiring and discharging employees. M. W. Alexander. Sci Am S 79:102-3 F 13 '15; Same cond. Am Gas Light J 103:43-4 J1 19 '15; Abstract. Iron Age 94:1032-3 O 29 '14; Abstract. Metal Work 32:609-10 N 6 '14; Abstract. Eng M 48:733-6 F '15

See also Employees

Emporia, Kansas

Municipal-utility problem at Emporia, Kan.; a central station leased to a progressive syndicate. Il Elec W 65:1106-7 My 1 '15

Empress of Ireland (steamship)

Salvage work on the Empress of Ireland. R. G. Skerrett. Il plan diag Int Marine Eng 20:60-2 F '15; Same cond. Sci Am 112:49 Ja 9 '15

Emscher tanks

Measuring the drainability of Emscher tank sludge. W. L. Stevenson. Il Eng & Contr 44:212 S 15 '15; Same. Munic J 39:427-8 S 16 '15; Same cond. Eng N 74:566 S 16 '15

Preliminary report on Emscher tanks and kindred sewage-clarification processes. K. Thumm and E. C. Reichle. Eng N 72:1306-8 D 31 '14

Enamel and enameling

Electrically heated enameling ovens. C. W. Bartlett. Il Gen Elec R 18:1130-5 D '15

6000-kw electric enameling load. Il plan Elec W 65:1702-2 Je 26 '15

Using electric ovens for enameling. Il Iron Tr R 57:215 J1 29 '15

Endosmosis. See Osmosis

Endowments

Awards for new truth. Sci Am 113:392 N 6 '15

Energy. See Force and energy; Free energy

Engine houses. See Roundhouses

Engineering

Application of engineering methods to the problems of the executive, director and trustee. H. Godfrey. Am Soc M E J 37:334-40 Je '15

Engineer a practical idealist. C. D. Marx. Eng Rec 72:378-80 S 26 '15

Human factors in engineering practice. J. Calder. Stevens Ind 32:193-206 J1 '15

Recent significant developments in science and engineering. Sibley J 29:109-14 Ja '15; Same. Sci Am S 79:83 F 6 '15

Relation of physical science to the development of engineering. R. C. Gibbs. Sibley J 29:129-32 Ja '15

Requisites for success in engineering. F. H. Fay. Boston Soc C E J 1:249-52 Ap '14

Review of the year 1914. Sci Am 112:6-7 Ja 2 '15

Roman technics and industry in early Germany. Sci Am S 79:130 F 27 '15

Year's review. Power 41:21-6 Ja 5 '15

See also Aeronautics; Aqueducts; Arches; Architecture; Blasting; Breakwaters; Bridges; Building; Building materials; Canals; Chemical engineering; Civil engineering; Curve plotting; Curves; Docks; Domestic engineering; Drainage; Dredging; Earthwork; Electric engineering; Embankments; Engineers; Engines; Foundations; Gas engineering; Grouting; Harbors; Haulage; Hydraulic engineering; Irrigation; Machinery; Marine engineering; Masonry; Mechanical drawing; Mechanical handling; Military engineering; Mining engineering; Municipal engineering; Railroad engineering; Railroads—Construction; Reclamation of land; Rivers; Roads; Sanitary engineering; Sea walls; Shop management; Shore protection; Standards; Engineering; Steam engines; Subways; Surveying; Tunnels and tunneling; Walls; Water supply engineering

Accounting

Cost accounting on construction work, with a description of the system used by the Abertaw construction company. L. H. Allen. forms Boston Soc C E J 1:133-77 Mr '14; Discussion. 1:455-79 O '14

Development of a unit cost system. N. Cunningham. Il Assn Eng Soc J 53:74-85 Ag '14; Same. Eng & Contr 42:374-6 O 21 '14; Discussion. Assn Eng Soc J 53:86-101, 165-70 Ag-S '14

Estimates

Eric canal enlargement greatly exceeds the estimated cost. Eng & Contr 43:139-40 F 17 '15

Estimating. C. R. Kreider. Elec R & W Elec'n 68:196-8 Ja 30 '15

Value of published costs. W. K. Palmer. Elec Ry J 45:345-6 My 1 '15

Examinations

California examination for construction engineer. Eng N 74:1081 D 2 '15

Engineers and civil-service examinations in Philadelphia and elsewhere. A. M. Swanson. Eng N 73:277-9 F 11 '15

Examinations for commissions, corps of engineers. Eng N 74:513-14 S 9 '15

Study and teaching

Methods of instruction in engineering extension; with discussion. K. G. Smith. W Soc E J 20:266-86 Mr '15

See also Engineering education

Tables, calculations, etc.

Computing area of segments of circles. H. N. Bradstreet. Eng N 73:692 Ap 8 '15

Computing offsets to circular curves. L. Pistner. Eng Rec 71:171, 307 F 6, Mr 6 '15

Reactions in a three-legged stiff frame with hinged column bases; with discussion. N. M. Stüneman. W Soc E J 19:881-920 N '14

To compute offsets to vertical curves. W. A. Cunningham. Eng Rec 71:244 F 20 '15

Cuba

American engineer in Cuba. F. E. Small. Power 41:83 Ja 19 '15

Italy

Italy and engineering. Sci Am S 80:11 J1 3 '15

South America

South America as a field for American engineers. B. Willis. Eng Rec 70:620 D 5 '14

Turkey

Engineering prospects in Turkey. Engineer 119:371-2, 395-6 Ap 16-23 '15

United States

American engineering in 1914. Engineer 119:123, 164-5, 174-5 F 5-19 '15

Engineering features of the Panama-Pacific International exposition. G. L. Bayley. Il Am Soc M E J 37:571-81, 696-8 O, D '15; Abstract. Eng N 74:845-6 O 28 '15; Discussion. Am Soc M E J 37:698-9 D '15

Engineering works of the West. Il Eng Rec 72:261-4 Ag 28 '15

Engineering, Chemical. See Chemical engineering

Engineering, Civil. See Civil engineering

Engineering, Electric. See Electric engineering

Engineering, Hydraulic. See Hydraulic engineering

Engineering, Marine. See Marine engineering

Engineering, Mining. See Mining engineering

Engineering, Municipal. See Municipal engineering

Engineering, Sanitary. See Sanitary engineering

Engineering, Steam. See Steam engineering

Engineering buildings

City of Jacksonville engineering building. W. P. Darwin. Il plans Eng N 72:1220 D 17 '14

Engineering bureaus

Iowa engineering society discuss the technical service bureau. Eng N 73:411 F 25 '15

Iowa engineers object to technical service bureau. Eng Rec 71:279 F 27 '15

Minnesota surveyors and engineers discuss bureau of engineering cooperation. Eng N 73:412 F 25 '15

Engineering bureaus—Continued

State competition with private engineers. Eng N 73:450 Mr 4 '15

State technical bureaus and the consulting engineer. Eng Rec 71:355 F 37 '15

Engineering colleges

Competition by professors in engineering schools. Eng N 73:276-7, 452-5, 646 F 11, Mr 4, Ap 1 '15

See also Throop college of technology

Advertising

One way to advertise an engineering school. Eng N 74:32-3 J1 1 '15

Engineering congress, International. See International engineering congress

Engineering education

American engineering education makes rapid advances. G. F. Swain. Eng Rec 72:387-9 S 25 '15

Automobile engineering curricula at the University of Michigan. W. T. Fishleigh. Horseless Age 35:111-14 Ja 20 '15

Broad survey of engineering education. Eng N 73:993-4 My 20 '15

Co-operative technical schools meet present needs. F. E. Ayer. Eng N 74:1059-61 D 2 '15

Course which gives broad training in business and economics. Eng Rec 72:323-4 S 11 '15

Education for professional success. S. H. Bunnell. Eng Rec 71:688-9 My 29 '15

Eminent members of profession discuss present standing of engineers. Eng Rec 71:361-4 Mr 20 '15

Engineering education, engineering success and leadership among men. Eng & Contr 43:350 Ap 21 '15

Illuminating engineering as a branch of technical instruction. C. E. Clewell. diags Illum Eng Soc 10:321-37; Discussion. 10:338-52 no 5 '15

New advanced course in electrical engineering at Columbia university. W. I. Slichter. J Elec R 18:940-4 O '15

Relation of educational training to the practice of engineering. W. H. Burr. Eng Soc W Pa 31:55-73; Discussion. 31:73-113 F '15

Shop training that is worth while. R. E. Kennedy and J. H. Hogue. J Iron Tr R 57:617-23 S 30 '15; Same. Foundry 43:405-11 O '15

Should another course be added to the engineering schools' curriculum. R. C. Hardman. Eng N 74:563-4 S 16 '15

Suggestion for technical schools. H. R. Gilson. Mach 21:770-1 My '15

Training of the civil engineer. Eng Rec 70:655 D 19 '14

Washburn shops of the Worcester Polytechnic institute. G. I. Aiden. Am Soc M E J 37:391-4 J1 '15

What is the trouble with our engineering education? E. Orton, Jr. Eng N 74:823-3 O 28 '15

See also Engineering colleges; Industrial service movement; Railroad education; Technical education

Engineering ethics

Competition by professors in engineering schools. Eng N 73:276-7, 452-5 F 11, Mr 4 '15

Ethical advertising for engineers. W. O. Sell. Eng Rec 71:660 My 22 '15

See also Professional ethics

Engineering foundation

Board named to control Engineering foundation. Eng Rec 71:695-6 My 29 '15

Endowment fund established by the United engineering society. Eng N 73:93 Ja 14 '15

Engineering foundation. Am Soc M E J 37:111-x F '15

Engineering foundation. Power 41:179-80 F 2 '15

Engineering foundation established. Am Ind 15:42+ Mr '15

Engineering foundation established. Iron Age 95:289-90 F 4 '15

Engineering foundation; first regular meeting. Elec R & W Elec'n 66:1047 Je 5 '15

Engineering foundation started with \$200,000 gift. Eng Rec 71:153-4 Ja 30 '15

Foundation rests on broad ideas. Iron Tr R 56:289-90 F 4 '15

Gift of \$200,000 for the advancement of the profession of engineering. Eng N 73:226-8 F 4 '15

Inauguration of the engineering foundation. Elec V 65:310 Ja 30 '15

List of members of the Board. Am Inst Min E Bul 108:xv D '15

Suggested activity for the engineering foundation. Power 41:339-40 Mr 9 '15

Engineering laboratories

Engineering experiment station of the University of Illinois. E. B. Paine. Am Inst E E Pro 34:2421-7 O '15

Laboratory control of water supplies. E. Bartow. J diags plan Am Water Works Assn J 1:720-6 D '14

Standard practice instructions for concrete testing laboratory. R. E. Goodwin. J Eng N 73:202-3 F 4 '15

See also Electric laboratories; Mining laboratories

Engineering law

Discussion of some legal principles of interest to engineers. W. L. Bowman. Eng & Contr 42:552-4 D 16 '14

See also Boilers—Laws; Building laws; Electric engineering—Laws; Engineers—Licenses; Heating—Laws; Plumbing laws; Railroad law; Sewerage—Laws; Ventilation—Laws; Waterworks—Laws

Engineering libraries

Growth of engineering libraries and need of indexes. Ry R 56:189-91 F 8 '15

Growth of engineering libraries and the need of indexes. H. W. Wilson. Ry R 56:430 Mr 27 '15

Indexing engineering literature. L. B. Krause. Ry R 56:358 Mr 13 '15

Reclamation service has unique library. Eng N 74:787 O 21 '15

Work of engineering libraries. Eng Rec 71:351 Mr 20 '15

Work of engineering libraries. K. C. Walker. Eng Rec 71:438 Ap 3 '15

Engineering literature

Early engineering handbooks. Mach 21:664 Ap '15

Indexing and filing technical literature. A. R. Kenner. Eng & Min J 99:851-6 My 15 '15

Proposed system of classifying and digesting the records of the society; with discussion. E. J. Prindle. Am Soc M E J 37:272-6 My '15

Suggested activity for the engineering foundation; indexing. Power 41:339-40 Mr 9 '15

See also Engineering libraries; Engineering periodicals

Engineering materials

See also Building materials; Concrete; Iron; Steel; Strength of materials; Testing

Engineering offices

Uptodate city-engineering office, Muscatine, Iowa; plan. Eng N 74:1040 N 25 '15

Engineering periodicals

Filing periodical literature. Ry R 57:657-8 N 20 '15

How can engineers best utilize the technical journals? J. W. Alvord. Eng & Contr 42:306-8 S 30 '14

Reading of a technical journal. H. S. Cooper. Elec Ry J 45:716-17 Ap 10 '15

Engineering records

Bridge cost record used by the Illinois highway commission. Eng & Contr 42:200-3 Ag 26 '14

City engineer's records in Frankfort, Ind. R. H. Boynton. Munic Eng 49:78-9 Ag '15; Same. Eng & Contr 44:165-6 S 1 '15

Engineering reports

How can annual reports of city engineering departments be improved? Eng Rec 71:254, 406-7 F 27, Mr 27 '15

More about annual and other reports. Eng Rec 71:512-13 Ap 24 '15

Regulations governing preparation of reports on water supply systems and extensions in Saskatchewan. Eng & Contr 42:131-2 Ag 5 '14

Scope of engineering reports and plans for sewerage and sewage disposal works in Saskatchewan. Eng & Contr 42:155-6 Ag 12 '14

Engineering reports—Continued

Western society of engineers upholds status of engineering report. *Elec R & W Elec'n* 66:396 F 27 '15

Engineering societies

Annual dues. *Elec W* 65:1227 My 15 '15
Association of national engineering societies. *Eng N* 73:83 Ja 14 '15

Contests in engineering society elections. *Eng N* 72:1319-20 D 31 '14

Co-operation or amalgamation of local engineering societies. *Eng N* 74:1042-3 N 25 '15
Directory of electrical associations. *Elec W* 66:1063 N 6 '15

Duties and sphere of action of a local engineering society with special reference to the Boston society of civil engineers. H. P. Eddy. *Boston Soc C E J* 2:149-63 Ap '15

Engineer awakes; abstracts. F. H. Newell. *Eng & Contr* 44:221-3 S 22 '15; *Eng N* 74:568-70 S 16 '15; *Power* 42:459-60 S 23 '15; *Eng Rec* 72:420-1 O 2 '15

Financing engineering societies. *Elec R & W Elec'n* 66:799 My 1 '15

Future of the engineering profession. A. J. Himes. *Eng Rec* 72:663 N 27 '15

How one engineering society secured publicity. C. E. Drayer. *Eng Rec* 70:645-6 D 12 '14

Ideal engineering society. P. M. Lincoln. *Am Inst E E Pro* 34:623-4 Ap '15

Illuminating engineering society. C. H. Sharp; W. D. Weaver. *Elec R & W Elec'n* 66:918-20 My 15 '15

Importance of the local engineering society. *Eng N* 72:1320-1 D 31 '14

List of engineering societies of the United States and Canada. *Eng N* 73:1099-1104 Je 8 '15

Local engineering society; discussion. J. F. Druar. *Assn Eng Soc J* 53:301-4 D '14

Rules for society programs. *Eng Rec* 72:536 O 30 '15

Time at hand when the engineering society should awake to its deficiencies; abstracts. E. McCullough. *Eng Rec* 72:421-2 O 2 '15; *Power* 42:530-1 O 12 '15

What the Southwestern electrical and gas association can do for me. A. V. Wainwright. *Am Gas Light J* 103:172-3 S 13 '15

See also names of societies, e. g. Associated engineering societies of St. Louis

Engineering standards. See Standards, Engineering

Engineers

Commission plan for control of public works. *Eng N* 73:1186-8 Je 17 '15

Constitution and list of members of the American water works association. *Am Water Works Assn J* Sup 1:1-94 D '14

Cooperation proposed between engineers and the Chicago association of commerce. *Ry R* 58:442 Mr 27 '15

Deficiency in personality responsible for engineer's failure to receive recognition. G. F. Swain. *Eng Rec* 71:261-2 F 27 '15

Effect of architects' license laws upon engineers. *Eng N* 73:382-3 F 25 '15

Eminent members of profession discuss present standing of engineers. *Eng Rec* 71:361-4, 390-2 Mr 20-27 '15

Engineer a practical idealist. C. D. Marx. *Eng Rec* 72:378-80 S 25 '15

Engineer and publicity, with special reference to the publicity work of the Cleveland engineering society; abstract. C. E. Drayer. *Eng & Contr* 42:574-5 D 33 '14; Abstract, with discussion. *Am Soc M E J* 37:88-92 F '15

Engineer awakes; abstracts. F. H. Newell. *Eng & Contr* 44:221-3 S 22 '15; *Eng N* 74:568-70 S 16 '15; *Power* 42:459-60 S 23 '15; *Eng Rec* 72:420-1 O 2 '15

Engineering contractor. H. P. Gillette. *Eng & Contr* 44:315-17 O 20 '15

Engineering positions in Illinois with state highway commission and with state utilities commission. *Eng & Contr* 43:421 My 12 '15

Engineers and public service. M. E. Cooley. *Elec Ry J* 45:1158-9 Je 19 '15

Engineers and public-service commissions. *Eng N* 74:247-8 Ag 5 '15

Engineers as arbiters of public equity and justice. W. M. Daniels. *Eng Rec* 70:623-4 D 5 '14

Engineers as members of public service commissions. C. H. Ledlie. *Eng N* 73:547-8 Mr 18 '15

Engineers from the contractor's viewpoint. R. W. Sherman. *Eng N* 72:1138 D 3 '14

Engineer's idea of values is usually confused; Prof. John R. Commons's views. *Eng & Contr* 43:284 Mr 31 '15

Engineers present open letter to chairman of New York constitutional convention. *Elec R & W Elec'n* 67:484 S 11 '15

Engineers' salesmanship. A. H. Pohlman. *Power* 41:723-4 My 25 '15

Engineers will discuss plans for nation-wide cooperative movement. *Eng Rec* 71:766-7 Je 19 '15

Experience of an engineer in public office. M. L. Cooke. *Am Soc M E J* 37:708-9 D '15

Factors in municipal engineering; abstracts. M. L. Cooke. *Am Soc M E J* 37:81-7 F '15; *Eng Rec* 70:644-5 D 12 '14; Discussion. *Am Soc M E J* 37:85-7 F '15

Herbert Spencer, engineer. E. E. Thum. *Eng N* 73:802-4 Ap 29 '15

How engineers earn fees. W. L. Benham. *Eng N* 74:372 Ag 19 '15

Insurance as an aid to engineers. N. H. Daniels. *Boston Soc C E J* 2:91-108 Mr '15

Investment banker and the engineer. C. A. Hobein. *Assn Eng Soc J* 54:237-57 Je '15

Knowledge of affairs needed by engineers. I. O. Baker. *Eng Rec* 71:722 Je 5 '15

Place of the engineer in modern society. C. A. Adams. *Sibley J* 29:211-19 Ap '15

Plain truth about leadership. *Eng Rec* 71:255 F 27 '15

Political economy and the engineer. G. L. Hoxie. *Elec W* 65:1549-51 Je 12 '15

Position of the engineer; abstracts. I. O. Baker. *Eng N* 73:1013 My 27 '15; *Concrete Cem* 7:184 N '15

Practicing engineers and industrial education. F. C. Bonser. *Eng N* 72:1133-4 D 3 '14

Publicity for the engineer and its importance; excerpts. C. E. Drayer. *Eng N* 73:1018-19 My 27 '15; *Eng Rec* 71:718-19 Je 5 '15

Relation of the architect and the engineer. D. D. Kimball. *Heat & Ven* 12:15-18 Mr; 26-30 Ap '15

Relations of accountants and engineers in special investigations of various kinds of plants. H. C. Hopson. *J Account* 20:397-9 N '15

Requisites for success in engineering. F. H. Fay. *Boston Soc C E J* 1:249-62 Ap '14

Specialized experience of engineers and contractors vital to country's defense. G. Perrine. *Il Eng Rec* 72:594-6 N 13 '15

Status of the engineer. E. W. Rice, Jr. *Gen Elec R* 18:234-7 Ap '15; Same. *Am Inst E E Pro* 34:643-50 Ap '15

Status of the engineer; symposium. *Am Inst E E Pro* 34:636-74 Ap '15; Abstracts. *Elec R & W Elec'n* 66:391-2 F 27 '15; *Elec W* 65:494-5 F 20 '15; *Eng N* 73:409-10, 742 F 25, Ap 15 '15

Taking inventory. *Eng & Contr* 43:437-8 My 19 '15

Time at hand when the engineering society should awake to its deficiencies; abstracts. E. McCullough. *Eng Rec* 72:421-2 O 2 '15; *Power* 42:530-1 O 12 '15

University of Wisconsin promotes engineering work without displacing consulting engineer. G. R. Bascom. *Eng Rec* 72:47-8 J 10 '15

Value of sales experience to the engineer. W. T. Price. *Sibley J* 30:11-13 O '15

Volunteer engineer officers. *Eng & Min J* 100:796-7 N 13 '15

See also Civil engineers; Electric engineers; Heating engineers; Locomotive engineers; Mining engineers; Technical writing

Licenses

Architects versus engineers; Illinois engineers win fight for legal recognition. *Assn Eng Soc J* 54:277-99 Je '15

Hearing on Massachusetts licensing bill. *Power* 41:413-13 Mr 23 '15

Engineers—Licenses—Continued

- History of the bill for a structural engineer's license law. A. Allen. W Soc E J 20:390-2 Ap '15
- Illinois law requires licenses for engineers. Eng Rec 72:71-3 JI 17 '15
- License legislation in the United States. A. A. Potter. Power 41:792-3 Je 8 '15
- Licensing structural engineers in Illinois. Eng N 74:323 Ag 12 '15
- Model boiler and engineers' license law—references. Power 42:166-8 Ag 3 '15
- Model boiler-inspection and engineers' license law. Power 42:32-3 JI 20 '15
- Pennsylvania license law declared unconstitutional. Power 42:202 Ag 10 '15
- Proposed act to provide for the licensing of structural engineers, and to regulate the practice of structural engineering in Illinois. Eng & Contr 43:243-4 Mr 17 '15
- Provisions of the Illinois license law for structural engineers. Eng & Contr 44:65-6 JI 28 '15
- Qualifications of Montana hoisting engineers. A. L. Street. Power 42:213 Ag 10 '15
- Resolution of board of direction of Western society of engineers pertaining to proposed license law for structural engineers. Eng & Contr 43:299-300 Mr 31 '15
- Structural engineers' license law in Illinois. Eng N 74:139-40 JI 15 '15
- Structural engineers' license law of the state of Illinois. W Soc E J 20:530-40 Je '15
- Salaries**
- Earnings of graduate and nongraduate engineers. Eng N 74:325, 613 Ag 12, S 23 '15
- Grades and compensation for engineers in the employ of the city of New York. Eng Rec 71:804 Je 26 '15
- One way to advertise an engineering school. Eng N 74:32-3 JI 1 '15
- Sliding salary scale for city engineers. Eng & Contr 44:117-18 Ag 18 '15
- Standardizing engineering positions and salaries in New York city. Eng N 73:54-5 Ja 14 '15
- Statistics of the earnings of graduate engineers. Eng N 74:505 S 9 '15
- Wages of engineers. E. Pagett. Power 41:18 Ja 5 '15
- See also* Civil engineers
- Societies**
- See* Engineering societies
- Engineers, American association of. *See* American association of engineers
- Engineers, National association of stationary. *See* National association of stationary engineers
- Engineers, State. *See* State engineers
- Engineers' clubs
- Ingredients of an engineers' club. A. P. Greensfelder. Assn Eng Soc J 54:1-5 Ja '15
- Engines**
- Census of primary power equipment. diag Elec W 65:215-16 Ja 23 '15
- Economic selection of prime movers. R. Traut-schold. Power 42:511-13 O 12 '15
- Gas and steam engines and the turbine. J. E. Johnson, Jr. Iron Age 95:626-9 Mr 18 '15
- Same. Sci Am S 79:294-5 My 8 '15
- N. E. L. A. committee report on prime movers. Elec W 65:1512-13 Je 12 '15; Elec R & W Elec'n 66:1111 Ja 12 '15
- Present status of prime movers. H. G. Stott, R. J. S. Pigott and W. S. Gorsuch. Am Inst E E Pro 33:953-86 Je '14; Abstract. Elec R & W Elec'n 65:31-2 JI 4 '14; Abstract. Elec Ry J 44:72-4 JI 11 '14; Discussion. Am Inst E E Pro 34:35-103 Ja '15
- Prime movers in American plants. A. A. Potter and W. A. Buck. Elec W 65:668-9 Mr 13 '15
- Recent developments in prime movers. W. F. Durand. Elec W 65:19-21 Ja 2 '15
- Uniformity of running of prime movers and its experimental determination: abstract. Bonin. Am Soc M E J 37:43 Ja '15
- See also* Aeroplane engines; Air engines; Automobile engines; Blowers; Crankpins; Crankshafts; Fire engines; Fuel; Gas and oil engines; Gas turbines; Governors (machinery); Heat engines; Locomotives; Marine engines; Pistons; Pumping engines; Pumps; Steam engines; Steam turbines; Tractors; Turbines
- England**
- Coast raids**
- Engineers and the Hartlepool raid. Engineer 118:610 D 25 '14
- English language**
- Bettering the use of English. S. C. Earle. Elec Ry J 45:94 Ja 9 '15
- How we got our alphabet. W. Rice. Inland Ptr 55:234-5 My '15
- Possessive case. Inland Ptr 54:645-6 F '15
- See also* Compound words; Proofreading; Punctuation
- English language (for foreigners)**
- Teaching English to foreigners in industry. P. Roberts. Am Ind 16:24-6 O '15
- Engraving**
- Process engraving. S. H. Horgan. *See* monthly numbers of the Inland printer
- See also* Engraving machines; Etching; Lithography; Photoengraving
- Engraving and printing, Bureau of. *See* United States—Engraving and printing, Bureau of
- Engraving machines
- Gorton universal engraving machine. II diag Mach 21:585-7 Mr '15
- Ensilage**
- Chemical changes during silage formation. R. E. Neidig. Am Chem Soc J 36:2401-13 N '14
- Occurrence of methyl alcohol in corn silage. E. B. Hart and A. R. Lamb. Am Chem Soc J 36:2114-18 O '14
- Envelop sealer**
- Envelop sealer of the pension office. II Sci Am 112:162 F 13 '15
- Envelops**
- Window envelopes. Illum Eng Soc 10:394-6 no 5 '15
- Enzymes**
- Behavior of enzymes at low temperatures. J. S. Hepburn. J Fr Inst 179:581-5 My '15
- Enzymes of the central nervous system. H. M. English and C. G. MacArthur. Am Chem Soc J 37:653-64 Mr '15
- Enzymes present in alfalfa; alfalfa investigation. C. A. Jacobson and A. Holmes. Am Chem Soc J 36:2170-82 O '14
- Enzymes: the synthetic and hydrolytic oxyn-trilase. V. K. Kriebel. Am Chem Soc J 37:2205-13 S '15
- Function of enzymes. S. C. Prescott. Sci Am S 79:67 Ja 30 '15
- Retention of activity by urease and by oxidase after exposure to the temperature of liquid air. J. S. Hepburn and C. B. Bazzoni. bibliog J Fr Inst 180:803-5 N '15
- Starch-forming enzyme from malt: its action on the hemicelluloses and its commercial application to brewing. C. B. Davis. II J Ind & Eng Chem 7:115-18 F '15
- Studies on enzyme action; some experiments with castor bean urease. K. G. Falk and K. Sugiura. Am Chem Soc J 36:2166-70 O '14
- Studies on enzyme action: the esterase and lipase of castor beans. K. G. Falk and K. Sugiura. Am Chem Soc J 37:217-30 Ja '15
- Studies on enzyme action: the lipase of soy beans. K. G. Falk. Am Chem Soc J 37:649-53 Mr '15
- See also* Digestive ferments
- Eoliths**
- Were the eoliths made by man? II Sci Am 112:366 Ap 17 '15
- Epicassit**
- New method of tin lining or coating. Eng & Contr 42:468-9 N 11 '14
- Equitable building, New York city**
- Description of Equitable building. II plans Arch & Bldg 47:165-78 My '15
- Fire prevention measures in the Equitable building. E. R. Hardy. II Arch & Bldg 47:179-83 My '15
- Lighting the Equitable building. F. L. Godinez. Arch & Bldg 47:188-90 My '15

- Equitable building New York city—Continued**
 Mechanical plant of the Equitable building. *II*
 plan Arch & Bldg 47:181-5 My '15
 Power plant of the new Equitable building. *II*
 Elec W 66:81-5 J 10 '15
 Rooms of the Bankers' club of America. *II*
 Arch & Bldg 47:184-7 My '15
- Erection of bridges.** See **Bridges—Erection**
- Erepsin**
 Studies on the action of erepsin. F. E. Rice.
 Am Chem Soc J 37:1819-33 My '15
- Erie, Pennsylvania**
Floods
 Concrete work withstands severe tests in the
 Erie flood. L. R. Ferguson. *II* Concrete Cem
 7:148-50 O '15
 Destruction wrought by Erie flood. *II* Elec W
 66:489-92 Ag 28 '15
 Erie can remove flood menace by spending
 \$798,000 on Mill creek improvement. F. Gan-
 nett. *II* diags map Eng Rec 72:440-2 O 9 '15
 Erie flood-protection report. diags Eng N 74:
 937 N 11 '15
 Erie rainstorm and flood. *II* map Eng N 74:
 326-9 Ag 12 '15
 Restricted stream channel responsible for Erie
 flood damage. T. E. Seelye. *II* Eng Rec 72:
 186-9 Ag 14 '15
- Water supply**
 Erie waterworks improvements. *II* Munic J
 89:358-9 S 2 '15
- Erie barge canal.** See **New York state barge canal**
- Erosion**
 Cause and prevention of storm erosion on Gulf
 coast. G. O. Case. *II* Eng N 74:1072-5 D 2 '15
 Coast erosion and protection on Long Island
 and New Jersey. G. O. Case. map Eng N 74:
 848-51, 388-91, 438-43 Ag 19-S 2 '15
 See also **Valleys**
- Eskimos**
 Aglait ilunainortut Oklok, Labradorerne. A. W.
 Birdsall. *II* Inland Ptr 54:679-80 F '15
- Essential oils**
 Blue hydrocarbon occurring in some essential
 oils. A. E. Sherndal. Am Chem Soc J 37:167-
 71 Ja '15
 Contributions of the chemist to the per-
 fumery and essential oil industry. B. T. Bel-
 ser. *J Ind & Eng Chem* 7:936-7 N '15
 Hydrogen number of some essential oils and
 essential oil products; oils of sassafras,
 anise, fennel, clove and pimenta. A. R. Al-
 bright. *II* diags Am Chem Soc J 36:2188-202
 O '14
 Oil of ocyum pilosum Roxb. K. Bhaduri. Am
 Chem Soc J 36:1772-3 Ag '14
 Volatile oil of calycanthus floridus. E. R.
 Miller, G. W. Taylor, and M. H. Eskew. Am
 Chem Soc J 36:2182-7 O '14
 Volatile oils of the genus solidago. E. R.
 Miller and J. M. Moseley. Am Chem Soc J
 37:1285-94 My '15
 Volatile oils of the genus solidago. E. R. Mil-
 ler and M. H. Eskew. Am Chem Soc J 36:
 2538-41 D '14
 See also **Citrus oils; Perfumery**
- Esterification**
 Esterification of benzoic acid by mercaptans.
 L. S. Pratt and E. E. Reid. *II* diags Am Chem
 Soc J 37:1934-48 Ag '15
- Esters**
 Determination of volatile esters in citrus oils
 and extracts. A. R. Albright and C. O.
 Young. Am Chem Soc J 37:3382-7 O '15
 Esters, as well as the monomolecular β - and
 γ -lactones, of *d*-mannonic and *d*-gluconic
 acids; on ortho-bis-*d*-galactonic acid, *d*-gal-
 actonic γ -lactone and its mono-hydrate.
 O. F. Hedenburg. Am Chem Soc J 37:345-72
 F '15
 New hydroxyurethanes and chromoisomeric
 silver salts of their acyl derivatives. L. W.
 Jones and R. Oesper. Am Chem Soc J 36:
 2208-23 O '14
 See also **Chlorobenzoylacetic esters**
- Ethetics**
 See also **Art**
- Estimates**
 Contractors' office forms and systems. M. J.
 Lavalle. Elec R & W Elec'n 67:62-3 J 10 '15
 Do you estimate or guess in bidding? S. Stern.
 Metal Work 83:44-5 Ja 1 '15
 How quantity competition can be eliminated.
 H. M. Saumenig. Eng Rec 72:566 N 6 '15
 Modern estimating methods. A. A. Dowd. *II*
 diags Mach 21:463-9 F '15
 Selling price of castings. A. O. Backert. Iron
 Tr R 56:228-30+ Ja 28 '15
 See also **Engineering—Estimates; Quantity surveying**
- Etching**
 Etching by the transfer process. *II* Metal Ind
 n s 13:6-8 Ja '15
 Etching reagents suitable for particular
 metals and alloys. O. F. Hudson. Eng &
 Min J 99:1120 Je 26 '15
 How to detect phosphorus in steel. W. T.
 Stead. *II* Iron Tr R 57:989-90 N 15 '15
 How to select etching reagents. O. F. Hudson.
II Iron Tr R 57:216-20 J 29 '15
 See also **Engraving**
- Etchings**
 Portfolio of etchings. R. F. Seymour. Arch
 Rec 38:489-96 O '15
 Six etchings of Brooklyn bridge, by H. De
 Ville; text by M. Stapley. Arch Rec 38:583-
 91 N '15
 Six etchings of European iron and steel works.
 J. Pennell. Iron Tr R 56:57-64 Ja 7 '15
- Ethane**
 Separation of ethane and ethylene by frac-
 tional distillation in a vacuum at low tem-
 peratures. G. A. Burrell and I. W. Robert-
 son. Am Chem Soc J 37:896-902 Ap '15
 Vapor pressure of ethane and ethylene at
 temperatures below their normal boiling
 points. G. A. Burrell and I. W. Robertson.
 diags Am Chem Soc J 37:1893-1902 Ag '15
- Etherometer**
 Apparatus for mechanical administration of
 anaesthetics. *II* Sci Am 113:471+ N 27 '15
- Ethers**
 Action of aluminium chloride on the aliphatic
 ethers. G. B. Frankforter and E. A. Daniels.
 Am Chem Soc J 37:2560-7 N '15
 Derivatives of phenyl ether. A. N. Cook and
 F. F. Sherwood. Am Chem Soc J 37:1835-9
 Ag '15
 On the oxidation of ether. R. M. Isham and
 C. E. Vail. Am Chem Soc J 37:902-5 Ap '15
 Rate of evaporation of ether from oils and its
 application in oil-ether colonic anesthesia.
 C. Baskerville. *J Ind & Eng Chem* 7:868-70
 O '15
- Ethiopia**
Antiquities
 Meroë the royal city of Ethiopia. Sci Am S
 79:98 F 13 '15
- Ethylene**
 Separation of ethane and ethylene by frac-
 tional distillation in a vacuum at low tem-
 peratures. G. A. Burrell and I. W. Robert-
 son. Am Chem Soc J 37:896-902 Ap '15
 Studies in catalytic hydrogenation; a new
 method of hydrogenation of volatile sub-
 stances and the rate of hydrogenation of
 ethylene. J. B. Rafter and E. E. Reid. Am
 Chem Soc J 37:2115-18 S '15
 Vapor pressure of ethane and ethylene at
 temperatures below their normal boiling
 points. G. A. Burrell and I. W. Robertson.
 diags Am Chem Soc J 37:1893-1902 Ag '15
- Etiquet**
 See also **Courtesy**
- Eucalyptus globulus**
 Eucalyptus oil industry of California. P. W.
 Tompkins. *J Ind & Eng Chem* 7:995-7 N '15
 Investigations on the oil of eucalyptus globu-
 lus of California. C. E. Burke and C. C.
 Scallone. *II* J Ind & Eng Chem 7:206-9 Mr
 '15
- Eugenics**
 Eugenics and war. Sci Am S 79:230 Ap 10 '15
 Protection of the strong; working of German
 insurance laws for the protection of the
 poor. Sci Am S 79:343 My 29 '15

Euler formula

Curves for strength and deflection of very long columns. E. L. Robinson. Eng N 73:1108-8 Je 10 '15

Euphrates river

Hindia dam on Euphrates river. II diagrs plan map Eng Rec 71:24-5 Ja 2 '15

European war, 1914-

Achilles' heel of Germany. Sci Am 113:154 Ag 21 '15

Art of deception in war. II Sci Am 112:124+ F 6 '15

Atrocities in the scholars' war. Sci Am 113:38 Jl 10 '15

Defense of Belgium by inundation. P. Sallior. II map Sci Am S 79:166 Mr 18 '15

Foresters in the great war. S: T. Dana. II Am For 20:858-67 D '14

Germany's grip on French steel works. E. Schrödter. Eng M 49:733-4 Ag '15

Glasgow railway men as soldiers. II Elec Ry J 45:47-9 Ja 2 '15

Great achievements of German state railroad lines. F: W. Wile. Ry Age 59:428-30 S 3 '15

Same. Sci Am S 80:218-19 O 3 '15

Lessons of the present war from a technical point of view. H. Maxim. Sci Am 112:453 My 15 '15

Railroad soldier at the front. W. S. Hlatt. Ry Age 59:811-12 O 29 '15

Review of the year 1914: army and navy. Sci Am 112:6 Ja 2 '15

Ups and downs of war. Sci Am 111:502 D 19 '14
See also Lusitania (steamship)

Aerial operations

Aeronautic lessons of the European war. C. Dienstbach. II Sci Am 112:637+ Je 28 '15

Aeronautics in 1914. Engineer 119:7-8 Ja 1 '15

Excerpt. Sci Am S 79:114 F 20 '15

Captive balloons on the French front. N. Truslow. Sci Am 113:181 Ag 28 '15

Cost of the war in airships; summary of the airship losses of the central empires. L. d'Orcy. II map Sci Am 113:294+ O 2 '15

European war from an engineer's standpoint. J: B. C. Kershaw. II diagrs Eng M 48:498-507 Ja '15

Loss of Zeppelins. Sci Am 113:95 Jl 31 '15

Progress in aeronautics; a review of recent air-raids and what they have accomplished. H. Bannerman-Phillips. Sci Am S 79:250-1 Ap 17 '15

War experiences of an air scout. F: C. Hild. II Sci Am 111:520+; 112:20+, 51+ D 26 '14-Ja 9 '15

Zeppelin and aeroplane raids. Engineer 120:265-6 S 17 '15

Zeppelin question; facts and figures indicating the number and capacity of the air fleet. G. Prade. Sci Am S 79:214-15 Ap 3 '15

Zeppelin raid on Paris. C. Dienstbach. Sci Am 112:332 Ap 3 '15

Zeppelins. Engineer 120:227-8 S 3 '15

Campaigns and battles

Battle of the Marne. W. N. Hlatt. Ry Age 59:26-8 Jl 2 '15; Abstract. Eng M 50:108-9 O '15

Campaigning in winter. Sci Am 111:461 D 5 '14

First year of the great war; a review of the operations in all theaters of war. M: E. Hanna. II Sci Am 113:110-11+ Ag 7 '15

Geographic aspects of the war. D. W. Johnson. II map Sci Am S 80:194-5, 222-4 S 25-O 2 '15

Strategic moves of the war. Sci Am 111:265, 306, 322+, 338+, 350, 378, 410, 422, 438-9, 454, 490, 506, 522+; 112:590-1, 600, 628; 113:28, 42, 62, 78, 94, 140-1, 158-9, 180, 198+, 224, 248, 270, 290, 320+, 338, 358, 378, 396+, 426, 466+, 486+, O 3-D 26 '14; Je 12-Jl 31, Ag 14-N 13, 27-D 4 '15

Strategic positions of the contending armies. Sci Am 112:428 My 8 '15

Causes

Economic causes of the war traced to mushroom growth of German industries. H. Hauser. Automobile 33:382-5 Ag 26 '15

Commercial and financial aspects

America and Brazil in the war crisis. M. Summers. Metal Work 82:762 D 11 '14

British engineering firms after the war. Engineer 120:392-3 O 22 '15

British India. U S Sp Cons Rep 72:490-503 '15

Chemical trade and the war. Engineer 120:379 O 22 '15

Doing without Europe. Sci Am 112:128, 157+, 176, 196 F 6-27 '15

Effect of the war on American industries. E: E. Pratt. Sci Am 113:203, 230-1 S 4-11 '15

Effect of the war on regulation of public utilities. N. T. Guernsey. Elec W 65:12-14 Ja 2 '15

Effect of the war upon the American chemical industries. J. H. James. Eng Soc W Pa 31:381-400; Discussion. 31:400-16 Je '15

Electrical industry in England. H. Harrison. Elec W 65:974 Ap 17 '15

England's colonies and the war. Am Ind 15:40 Ap '15

European war and the lumber trade. R. C. Bryant. Am For 20:881-6 D '14

Financial developments in South American countries. W: H. Lough. U S Bur For & Dom Com 103:1-42 '15

Foreign competition after the war. Engineer 119:557-8 Je 4 '15

Future prospects of the electrical export business. M. A. Oudin. Elec W 65:14-15 Ja 2 '15

Germany's preparations for the industrial struggle after the war. Engineer 120:368-9 O 15 '15

How American industry may be hampered through a depleted money market and an embarrassment of credits. Am Ind 15:17 Ap '15

Industrial energy as a military weapon. J. R. Finlay. Met & Chem Eng 13:547-50 S 1 '15

Influence of the European war on the mining industry of Dutch Guiana. F. B. Percival. Eng & Min J 99:445 Mr 6 '15

Influence of the war on the automobile industry. H. W. Perry. II Sci Am 113:206-8 S 4 '15

Interest rates on public utility bonds. H. S. Welsh. Elec Ry J 45:137-8 Ja 16 '15

Italian cotton industry since the European war. R. Sansone. Textile World 49:501-3 Ag '15

Lessons of the war; after-the-war policy. Engineer 120:414-15 O 29 '15

Nickel, copper and mercury as affected by the war. J Ind & Eng Chem 7:71-2 Ja '15

Non-ferrous metals and the war. W. R. Ingalls. Iron Age 96:420-1 Ag 19 '15

Results of the war for public service commissions to consider. H: Floy. Elec W 65:15-16 Ja 2 '15

Seed supply and the war. G. E. Mitchell. II Sci Am 111:488 D 12 '14

Solving some war order problems. E. C. Kreutzberg. II Iron Tr R 57:433-6+ S 2 '15

Tasks of German inventors in wartime. Sci Am 113:214+ S 4 '15

War and its bearing upon contracts and trade. A. Del Mar. Eng M 50:18-27 O '15

War and lumber. Sci Am 113:194 S 4 '15

War and our chemical industries; symposium; with discussion. J Ind & Eng Chem 7:59-64 Ja '15

War and our metals. L. O. Kellogg. Eng M 49:18-27 Ap '15

War and the British engineer. Engineer 118:203-4, 226-7, 249, 282-3, 304-5, 372-3, 512-13; 119:114-15 Ag 28-S 25, O 16-N 27 '14, Ja 29 '15

War and the chemical industry. W: H. Nichols. J Ind & Eng Chem 7:131-6 F '15

War and trade losses of overseas countries. Am Ind 16:45 O '15

War orders and American industry. Eng M 49:481-8 Jl '15

Zinc corporation and the war. Eng & Min J 100:95-7 Jl 17 '15

Cost

Economics of the war. Eng & Min J 99:398 F 27 '15

Destruction of property

Architect's impressions in Belgium. E. T. Richmond. II Am Inst Arch J 8:153-8 Ap '16

Destruction of architectural monuments in Belgium. R. A. Cram. An Inst Arch J 3:185-6 Ap '15

Great war's destruction of French forests. J. P. Alaux. II Am For 21:155-68 Mr '15

European war—Destruction of property—Cont.

Report of a German commission upon the destruction of architectural monuments in Belgium. R. D. Kohn. *Am Inst Arch J* 3: 120-2 Mr '15
Without knowing why. *Am Inst Arch J* 3: 198-200 My '15

Maritime law

Blockade by submarine. *Sci Am* 112:376 Ap 24 '15

Medical and sanitary affairs

Bath trains of the Russian army. *Il Sci Am* 113:13 J1 3 '15; Same. *Metal Work* 84:363-4 S 17 '15
Deaf-mutism produced by shock. *Sci Am* S 80: 386 N 20 '15
Educating invalid soldiers. A. Gradenwitz. *Il Sci Am* 113:239 S 11 '15
Exposition of military sanitation; showing how the sick and wounded are cared for. A. Gradenwitz. *Il Sci Am* S 79:316-17 My 15 '15
Letters from the firing line: the care of the wounded. X. Sager. *Il Sci Am* 111:510+ D 19 '14
Roentgenology in war. *Il Sci Am* S 79:68 Ja 30 '15

See also European war—Relief work; Hospital cars; Hospital trains

Military equipment

Ammunition and finance in the present war. *Sci Am* 112:804 Je 19 '15
Austria's famous Skoda mortars. *Il Sci Am* 113:12 J1 8 '15
Blowing up barbed wire entanglements: the poles bearing explosives used by the French, Russian and English armies. *Il Sci Am* 111: 463-9 D 5 '14
Electricity in the war. *Il Elec R & W Elec'n* 67:76-8 J1 10 '15
European infantryman's rifle. E. S. Crossman. *Il Sci Am* 112:398-9 My 1 '15
European war from an engineer's standpoint. J. B. C. Kershaw. *Il Eng M* 49:43-50 Ap '15
Flying machines of the warring powers. J. J. Ide. *diags Sci Am* 112:226-7+ Mr 6 '15
French mount 75mm. gun on 30 h.p. chassis. W. F. Bradley. *Il Automobile* 33:305-9 F 13 '15
Military tactics and the motor. *Il Sci Am* 112:8-9+ Ja 2 '15
Motor trucks and modern warfare. J. Brinker. *Il Sci Am* 113:398-9+ N 6 '15
Munition metals. H. C. H. Carpenter. *Sci Am* S 80:262-3 O 23 '15; Abstract. *Eng M* 50:112-13 O '15
Russian bath trains. *Ry Age* 58:378-9 F 26 '15
War uses of the motorcycle: cycle ambulance and motor machine gun. *Il Sci Am* 112:138+ F 6 '15

See also Automobiles in war

Naval operations

Action in which the Carmania sank the Cap Trafalgar. *Il Sci Am* 111:449 D 5 '14
Battle of the North sea. *Il Sci Am* 112:136-7 F 6 '15
Forcing the Dardanelles. *Il map Sci Am* 112: 244, 264-5, 316-17 Mr 13-20, Ap 3 '15
Hitting an invisible ship at a ten-mile range. *Il Sci Am* 112:218-19 Mr 6 '15
Loss of the pre-dreadnought Bulwark. *Il Sci Am* 111:489 D 13 '14
Naval lessons of the war. H. M. Kennard. *Sci Am* 112:473 My 23 '15
Russian naval victory in the Baltic. *Il Sci Am* 113:209 S 4 '15
Sinking of the German Pacific squadron. *Il Sci Am* 112:25 Ja 2 '15
Some recent naval operations. *Sci Am* 111:518 D 26 '14
Twelve months of the great naval war; how the British fleet has justified its existence. J. B. Walker. *Il Sci Am* 113:108-9+ Ag 7 '15
War of attrition. *Sci Am* 112:376 Ap 24 '15
When the German fleet comes out. *Sci Am* 112:586 Je 12 '15
Wrecking of the cruiser Emden by shell fire. *Il Sci Am* 113:376 O 30 '15
See also European war—Submarine operations; Lusitania

Neutral powers

Shall there be a neutral coalition? *Sci Am* 113: 462 N 27 '15

Peace and mediation

Organized efforts to bring about peace. F. W. Kelsey. *Sci Am* 111:491 D 12 '14

Personal narratives

Forests in the Russian war zone. S. Washburn. *Il Am For* 21:755-67 J1 '15
In and out of the Caucasus in war time. L. C. David. *Il Eng & Min J* 99:477-80 Mr 13 '15
In the wake of war. W. F. Bradley. *Il map Automobile* 33:483-8 Mr 18 '15
War experiences of an air scout. F. C. Hild. *Il Sci Am* 111:520+; 112:20+, 51+ D 26 '14- Ja 9 '15

Prison life

Science in German concentration camps. A. Gradenwitz. *Il Sci Am* 113:10-11 J1 3 '15

Relief work

Herbert Clark Hoover and American relief work; abstract. W. Irwin. *Eng & Min J* 99: 243-4 Ja 30 '15
Herbert Clark Hoover, the rescue specialist. *por Eng & Min J* 99:935-6 My 23 '15
Motion study for the crippled soldier. F. B. Gilbreth. *Il Am Soc M E J* 37:669-73; Discussion. 37:673-5 D 15
Stretcher hammock and stretcher chair. N. Truslow. *Il Sci Am* 113:342+ O 16 '15
Training of the war's maimed, halt and blind. *Il Sci Am* 113:401+ N 6 '15
See also European war—Medical and sanitary affairs

Results (forecasts)

Amateur prophecies. *Sci Am* 113:226 S 11 '15

Submarine operations

Missing! *Sci Am* 113:422 N 13 '15
Submarine as a commerce destroyer. *Il Sci Am* 112:395 My 1 '15
European war and science
England's tardy recognition of applied science. W. R. Whitney. *J Ind & Eng Chem* 7:819-22 O '15
Influence of the war on science. *Sci Am* 113: 462 N 27 '15
Science in the war and after the war. J. A. Fleming. *Sci Am* S 80:338-9 N 27 '15; Same cond. *Engineer* 120:386-7 O 8 '15
Evans museum and dental institute. See Pennsylvania. University
Evanston, Illinois

Water supply

Rapid filter plant at Evanston. L. Pearse. *Il plans Am Water Works Assn J* 2:160-79 Mr '15

Evaporation

Heat of vaporization of normal liquids. J. Kendall. *diag Am Chem Soc J* 86:1620-30 Ag '14
Sugar-house evaporating apparatus; abstracts. E. W. Kerr, J. F. Gunther and W. A. Tolsten. *Met & Chem Eng* 13:455-92, 506-7 Ag '15

See also Distillation; Drying

Evaporators

Condensers for evaporating apparatus. H. W. Kerr. *diags Met & Chem Eng* 13:551-7 S 1 '15
Failure of evaporators. W. B. Tardy. *Int. Marine Eng* 20:509-11 N '15

Évasé stack

Mechanical draft and the évasé stack. A. M. de Bellis. *diags Eng M* 49:526-34 J1 '15

Evening and continuation schools

Bit of South America in Wisconsin; the use and flexibility of the continuation school. H. E. Miles. *Am Ind* 15:28 Mr '15
Pennsylvania's new compulsory continuation schools. H. E. Miles. *Am Ind* 16:28-9 N '15

Evergreens

Ornamental evergreens. W. H. Miller. *Il plans Am For* 21:916-21 S '15

See also Coniferae; also names of special evergreen shrubs and trees, e. g. Douglas fir; Fir; Pine

Evidence

Verdict of the insects as to time of death. D. Waterson. Sci Am 113:11 JI 3 '15
See also Identification

Evolution

Some questions of evolution. E. B. Wilson. Sci Am S 79:215 Ap 3 '15
See also Variation (biology)

Examinations. See Civil service—Examinations; Electric engineering—Examinations; Mining engineering—Examinations

Excavating machinery

Albrecht excavator and loader. II Concrete Cem 7:125 S '15

Brownhoist-Shnoble patent drag line bucket. II Ry R 57:249-50 Ag 21 '15; Eng N 73:1231-3 Je 24 '15; Eng & Contr 43:580-1 Je 30 '15; Ry Age 59:125-6 JI 16 '15

Cost of excavating drainage ditches with steam and electric machines. Eng Rec 70:704-5 D 26 '14

Dragline cableway excavator. II Eng Rec 70: sup279 D 5 '14

Dragline cableway is an effective tool for sand and gravel plants. II Eng Rec 71:716-18 Je 5 '15

Dragline excavates 70,854 cubic yards per month. II Eng Rec 71:27 Ja 2 '15

Dragline excavator with wagon loader. II Eng N 73:76 Ja 14 '15

Drag-line excavators with high-duty machinery. Eng Rec 71:429-30 Ap 3 '15

Drag-line machine for nitrate. J: G. Beck. II Eng M 49:429 Je '15

Dredge walks along over trench. II Eng N 74: 942 N 11 '15

Earth-moving with electric dragline excavators. Eng N 73:1183 Je 17 '15

Electric dragline excavates 60,000 yd. in 18 days. Eng & Min J 100:882 N 27 '15

Excavating aggregates with drag line and hauling by motor truck on Indiana concrete road work. S. E. Bates. II plans Eng & Contr 44:231-3 S 22 '15

Excavating and backfilling sewer trenches by machine. Eng Rec 71:20-1 Ja 2 '15

Excavating machine that walks. II diag Sci Am 113:68 JI 17 '15

Excavating machinery used in land drainage. D. L. Yarnell. II diags U S Agric Bul 300: 1-37 '15

Gasoline engine shovel for light excavation. II Eng & Contr 44:152-3 Ag 25 '15

Home-made clamshell excavator of 1877. L. Goodday. II diag Eng N 74:78-9 JI 8 '15

Largest electric dragline excavator. II Eng & Contr 42:547 D 9 '14

Light power excavators. II Sci Am S 78:405 D 26 '14

McCormick bottomless drag line excavator. II Eng & Contr 44:56 JI 21 '15

Methods and cost of levee enlargement with a tower dragline excavator. II diags Eng & Contr 43:417-20 My 12 '15; Excerpt. Eng M 49:598-9 JI '15

Motor-driven drag-line excavators for constructing headwater diversion channel. II Elec W 65:934 Ap 10 '15

Moving dirt with gasoline. II Sci Am 113:185 Ag 28 '15

Myers-Whaley machines on the Rand. II Eng & Min J 99:150-1 Ja 16 '15

New trenching machines. II Eng N 74:448-9 S 2 '15

New type of grab. II Engineer 118:602-3 D 25 '14

New type of traveling excavator for ditches. W. W. Patch. II Eng Rec 70:643 D 12 '14

Power scraper-excavator. II Eng N 73:542-3 Mr 18 '15

Sewer construction in Chicago, Ill., with a ladder type excavator. S. E. Bates. II Munic Eng 49:183-5 N '15

Stripping with dragline excavators. Eng & Min J 100:486-7 S 11 '15

Track-trench excavating machine. II Elec Ry J 46:74 JI 10 '15

Trench excavators; four models—steam, gasoline or electric drive. diags Munic J 38:522-3 Ap 15 '15

See also Dredges; Dredging machinery; Electric shovels; Mining machinery; Rock drills; Steam shovels

Excavation

City tunnel of the Catskill aqueduct. W. E. Spear. diags Eng N 73:148-53 Ja 28 '15

Court decision on the inviolability of test boring records. Eng & Contr 43:416-17 My 12 '15

Derrick-trolley carries dirt beyond caving banks. M. A. Millitt. diags Eng Rec 73:674 N 27 '15

Diagram for computing rock in sewer trenches. C. A. Bryan. Eng N 73:1081-2 Je 3 '15

Dragline fills in ahead of itself for its own track. L. C. Heilbronner. II Eng Rec 72:365 S 18 '15

Excavating and timbering the very deep trenches required in reservoir and other dam construction. J. M. M. Greig. plans Eng & Contr 44:176-8 S 8 '15

Excavating plant for heavy drainage work in Arkansas. II Eng Rec 71:41 Ja 9 '15

Excavation for foundation of Elephant Butte dam. E. H. Baldwin. II diags plan Eng N 73:49-54 Ja 14 '15

Hydraulic mining cartridge. J. Tonge. II diags Sci Am S 79:156-8 Mr 6 '15

Method of excavating for the foundation of a bank building in Stockholm, Sweden. K. P. Billner. diags Eng & Contr 44:112 Ag 11 '15

Methods and cost of levee enlargement with a tower dragline excavator. II diags Eng & Contr 43:417-20 My 12 '15

Methods of excavation for buildings. A. B. McDaniel. II diags Eng Rec 71:68-71; tables p 69, 71 Ja 16 '15

Misleading boring records are grounds for recovery of damages by contractors. Eng Rec 71:554-5 My 1 '15

New York rapid transit railway extensions. F. Lavis. II diags Eng N 72:1104-9 D 3 '14

Preliminary estimating of canal excavation. L. M. Hammond. Eng Rec 71:146-7 Ja 30 '15

Stripping of gravel pits by hydraulic methods. W. H. Wilms. diags Ry Age 58:1430-3 Je 18 '15

Task and bonus work applied to excavation. Concrete Cem 5:243 D '14

See also Blasting; Dredging; Earthwork; Electric shovels; Excavating machinery; Shaft sinking; Street openings; Subways; Subways (streets); Trenches; Tunnels and tunneling

Cost

Conditions determining maximum grades and methods and cost of road grading in West Virginia. A. D. Williams. Eng & Contr 43: 16-17 Ja 6 '15; Excerpt (Cost of grading and excavating). Concrete Cem 5:267-8 D '14

Cost of excavating abutments and wing-walls for a street bridge. H. R. Ferriss. Eng & Contr 44:14 JI 7 '15

Cost of excavating drainage ditches with steam and electric machines. Eng Rec 70:704-5 D 26 '14

Cost of initial mining excavations. E. D. Gardner. Assn Eng Soc J 54:210-19 My '15

Cost of mine openings. E. D. Gardner. Eng & Min J 100:791-4 N 13 '15

Costs of electric shovel work at Cleveland. II Elec Ry J 44:1281-2 D 5 '14; Same. Elec R & W Elec'n 66:172-3 Ja 23 '15

Ditch dug with dynamite at 15 cents per cubic yard. Eng Rec 72:673 N 27 '15

Dredges and excavating machinery. H. W. Rogers. Am Inst E E Pro 34:3035-9 D '15

Earth excavated for less than six cents per yard in District no. 9, Mississippi county, Arkansas. Eng Rec 71:176 F 6 '15

Excavation by Cleveland railway co. II Ry R 56:87-3 Ja 9 '15

Methods and costs of electric shovel work removing slides and side cutting for electric railway. diags Eng & Contr 43:154-5 F 17 '15

Methods of excavation for buildings. A. B. McDaniel. II diags Eng Rec 71:68-71; tables p 69, 71 Ja 16 '15

Operation analysis of new machines which cheapen the moving of earth on road work. A. B. McDaniel. II Eng Rec 72:126-8 JI 31 '15

Rapid trench excavation at Canadian camp follows war's call. II Eng Rec 71:182 F 6 '15

Reducing the cost of drainage excavation. Eng Rec 70:698-4 D 26 '14

Trench spoil moved cheaply by tractor-trailer trains. II Eng N 74:842-3 O 28 '15

- Excavation—Cost—Continued**
 Unit costs of and organization for building site excavation. W: W. Hay. Eng & Contr 43:453-4 My 19 '15
 Unit costs of steam shovel work in Cuba. J. M. Bischoff. Eng & Contr 44:276-8 O 6 '15
See also Earthwork—Cost
- Excavation, Subaqueous**
 Subaqueous rock excavation. C: C. Phelps. *Il* Eng N 74:968-73, 1020-4, 1062-7 N 18-D 2 '15
 Exclusive agencies. See Sales
- Executive's problem; an analysis of what is involved in different forms of management.** G: D. Babcock. Iron Age 96:419 Ag 19 '15
- Exhaust fans.** See Fans, Exhaust
- Exhaust steam**
 Combination electric heating plant, Laramie, Wyo. A. E. Anderson. *Il* Power 42:602-5 N 2 '15
 Commercial value of exhaust steam. A. L. Johnston, Jr. Eng M 49:327-33 Je '15
 District heating with open heater. T: Wilson. *Il* plan Power 43:44-7 J 13 '15
 Does it take a greater amount of heat initially to heat with live steam than with exhaust steam? L. N. Evans. Heat & Ven 12:39-43 Ja '15
 Engine condensation, with particular reference to exhaust steam heating. P. West. diags Heat & Ven 12:46-8 Mr '15
 Exhaust steam turbine practice. C. A. Tupper. *Il* Iron Tr R 55:1031-5+ D 3 '14
 Exhaust steam turbines. *Il* Colliery 35:619-20 Je '15
 Five hundred kilowatts from exhaust of hoisting engine. T: Wilson. *Il* diags plans Power 42:143-6 Ag 3 '15
 Freeing condensed steam from oil. Sci Am 112:325+ Ap 3 '15
 Heating value of exhaust steam. D: M. Myers. Eng M 49:712-17 Ag '15
 Heating value of exhaust steam. D: M. Myers. Sch Mines Q 36:40-7 N '14
 How much is exhaust steam worth? G. D. Crain, Jr. Power 40:811 D 8 '14
 Miter coils for exhaust steam heating. A. G. Solomon. diag Power 42:506 O 12 '15
 Modern practice in heating and ventilation. A. G. King. diags Dom Eng 72:102-4 J 12 '15
 Ordinary wastes in the power plant. C: L. Hubbard. plans Eng M 49:809-17 S '15
 Possible economies from the use of exhaust steam in a water gas plant. S. A. Reinhard and C. A. Schnerr. *Il* plan Am Gas Light J 102:225-30 Ap 12 '15
 Pressure survey study constituting a report on the comparative use of exhaust and live steam for heating. C. C. Wilcox. diag plans Heat & Ven 12:23-32 Ag '15; Abstract. Elec R & W Elec'n 66:1120 Je 12 '15
 Problems in power-plant design. (Engineers' study course) C: L. Hubbard. Power 41:66-8 Ja 12 '15
 Selling exhaust steam versus operation condensing. Elec W 65:1556 Je 12 '15
 1250 kw mixed pressure turbo-generator; abstract. F. Schulte. Am Soc M E J 37:851-2 N '15
 Use of steam from the receiver of a compound engine. A. Beaurienne. Am Soc Heat & V E 19:228-43 '13
 Utilization of exhaust steam. diags Sci Am S 80:277 O 30 '15
 Utilization of waste heat for the generation of electrical energy. H. Hobson. diag Inst E E J 53:844-5 Je 15 '15
 Vacuum steam heating, mechanical systems and the thermostatic valve. A. G. King. diags Dom Eng 72:310-12 S 11 '15
 Watt turbo-generator on elevator load in the Lumber exchange building, Chicago. *Il* diags Power 42:717-20 N 23 '15
 Washington avenue power plant, Scranton, Penn. W. O. Rogers. Power 41:875 Je 29 '15
 What is exhaust steam worth? E. Brown. Power 42:155 Ag 3 '15
 What is exhaust steam worth? R. McCarthy. Power 42:242 Ag 17 '15
 Exhaust systems. See Dust removal; Waste removal
- Exhibitions**
 Seattle industrial exhibit. *Il* Iron Age 96:194-5 J 12 '15
See also San Diego—Panama-California exposition; San Francisco—Panama-Pacific international exposition; also subdivision Exhibitions under names of subjects, e. g. Machinery—Exhibitions
- Exits (building)**
 Inclined walkways replace stairs and elevators in new Victor building at Camden, N. J. *Il* plans Eng Rec 72:656-7 N 27 '15
- Expansion (heat)**
 Temperature coefficient of expansion of petroleum residuums. H. Rossbacher. diag J Ind & Eng Chem 7:577-8 J 1 '15
- Expansion joints.** See Concrete construction—Expansion joints; Pavements—Expansion joints
- Explorers**
 Light reading for polar explorers. Sci Am 112:262 Mr 20 '15
- Explosions**
 Cereal dust explosions. D: J. Price. Colliery 35:871-2 J 1 '15
 Decomposition of ammonia and the chances of explosions. F. L. Fairbanks. Power 42:715-17 N 23 '15
 Explosibility of grain dusts. D: J. Price and H. H. Brown. Sci Am S 78:388 D 5 '14
 Explosion in Pasadena septic tank. *Il* Metal Work 84:464 O 8 '15
 Explosion leaves grain elevator practically intact. *Il* Eng Rec 72:119-20 J 12 '15
 Explosion of a small hot water heater in a garage. *Il* Locomotive 30:170-2 Ap '15
 Explosion of hot-water tank. H. E. Collins. *Il* diag Power 41:451-2 Mr 30 '15
 Explosion of kerosene lamps. Sci Am S 79:92 F 6 '15
 Explosion of picric acid. A. Cooper-Key. Engineer 119:155 F 12 '15
 Explosions in air liquefaction plants and their causes; abstract. W. Bramkamp. Am Soc M E J 37:401-3 J 1 '15
 Explosives and accidents. Engineer 120:299 S 24 '15
 Gas explosions in boiler furnaces. diags Power 41:553-4, 651-3, 719, 785-6 Ap 20, My 11, 25, Je 8 '15
 Gas explosions in boilers. R. Trautschold. Power 42:650-2 N 9 '15
 Gaseous explosions. D. Clerk. Sci Am S 79:288 My 1 '15
 Preventing cupola explosions. F. Osswald. *Il* diag Iron Tr R 55:1228+ D 31 '14
 Septic tank explosion at Florence, N. C. M. Maffitt. Eng N 73:410-11 F 25 '15
See also Boiler explosions; Coal dust; Coal mines and mining—Accidents and explosions; Explosives; Flywheel explosions; Mine explosions; Safety lamps; Sewer explosions
- Explosives**
 Cellulose for explosives. Engineer 120:275-8 S 17 '15
 Chemical engineering in nitrocellulose manufacture. S. L. Stadelman. Met & Chem Eng 13:361-6 Je '15
 Coal-tar products used in making explosives. C. G. Storm. U S Bur Mines Tech Pa 89:16-17 '15
 Contributions of the chemist to the explosives industry. C: E. Munroe. J Ind & Eng Chem 7:945 N '15
 Dynamite does not shoot down. Colliery 35:546-7 My '15
 Efficiency of explosives. A. Stettbacher. Sci Am S 80:219 O 2 '15
 Explosives and accidents. Engineer 118:531-2 D 4 '14
 Explosives as an aid to engineering. C: E. Munroe. Am Soc M E J 37:705-7 D '15
 Explosives for driving concrete piles. F. T. James. Eng N 74:558-9 S 16 '15
 Explosives from tar. Am Gas Light J 102:279, 282 My 3 '15
 Explosives from tar products. V. B. Lewis. Am Gas Light J 102:197 Mr 29 '15
 Explosives used in war and metal mining. P. E. Barbour. Eng & Min J 100:507-11 S 25 '15
 Freezing point of low freezing explosives. A. La Motte. Colliery 35:317 Ja '15

Explosives—Continued

- High explosives. L. S. Marsh. *Il W Soc E J* 20:152-62 F '15; Same. *Sci Am S* 80:104-5 Ag 14 '15; Discussion. *W Soc E J* 20:162-71 F '15
- High explosives vs. dyestuffs. *Textile World* 48:528-9 F '15
- Liquid air as an explosive; abstract. M. Przyborski. *Am Soc M E J* 37:341-2 Je '15
- Permissible explosives tested prior to March 1, 1915. S. P. Howell. *U S Bur Mines Tech Pa* 100:1-14 '15
- Primer on explosives for metal miners and quarrymen. C. E. Munroe and C. Hall. *diags pla U S Bur Mines Bul* 80:1-117 '15
- Production and distribution of explosives in the United States during the calendar year 1914. A. H. Fay. *tables U S Bur Mines Tech Pa* 107:1-14 '15
- Tolerances in tests of permissible explosives. *J Ind & Eng Chem* 7:716-17 Ag '15
- See also Ammunition; Blasting; Inflammable mixtures; Torpedoes
- Storage**
- Safe distance for powder houses. *Eng N* 74: 754 O 14 '15; Same. *Eng & Min J* 100:842 N 20 '15
- Transportation**
- Annual report of Bureau of explosives. *Ry Age* 58:792 Ap 9 '15
- Safe transportation of small-arms ammunition. *Il Sci Am* 112:589-90 Je 12 '15
- Explosives, Military**
- Blowing up barbed wire entanglements: the poles bearing explosives used by the French, Russian and English armies. *Il Sci Am* 111: 468-9 D 5 '14
- European war from an engineer's standpoint. J. B. C. Kershaw. *Il Eng M* 49:43-50 Ap '15
- High explosives in warfare. W. Macnab. *Sci Am S* 79:117 F 20 '15
- Military explosives; their chemistry, preparation and action. *Sci Am S* 80:150-1, 166-7 S 4-11 '15
- Modern munitions of war. V. Lowes. *Engineer* 120:69 Jl 16 '15
- Munitions of the present war. *Ry R* 57:373-5 S 18 '15
- Properties and uses of military explosives. L. Cresap. *Iron Age* 96:752-3 S 30 '15
- Trinitrotoluene in the war. *Sci Am S* 79:171 Mr 13 '15
- Use of cotton for the production of explosives. *Sci Am S* 80:271 O 23 '15
- What happens when gunpowder explodes. *Sci Am S* 79:246 Ap 17 '15
- Export trade**
- American goods for Australian use. J. P. Bray. *Metal Work* 83:351 Mr 5 '15
- American international corporation organize to promote foreign trade. *Elec W* 66:1180-1 N 27 '15
- American pipe and fittings in South Africa. *Iron Age* 96:1230-1 N 25 '15
- Big financial concern to aid foreign trade. *Ry R* 57:705 N 27 '15
- Consular recommendations on South American trade. *U S Bur For & Dom Com misc ser* 20:1-29 '15
- Consular service in business getting. *Iron Age* 96:526-7 S 2 '15
- Co-operation in developing foreign trade. W. N. Dickinson. *Metal Work* 82:734 D 4 '14
- Export movement set forward at St. Louis. *Iron Age* 95:246-51+ Ja 28 '15
- Export possibilities. P. Hough. *Textile World* 49:233-5 My '15
- Export price records. H. A. Russell. *Iron Age* 96:1114-15 N 11 '15
- Export trade and how to get it. G. F. Bagge-Féron. *Dom Eng* 70:111-13 Ja 23 '15
- Export trade and how to get it. G. F. Bagge-Féron. *Elec R & W Elec'n* 66:86-8, 123-5, 161-4 Ja 9-23 '15
- Federal commission hearings bring out weaknesses in export trade. *Automobile* 32:1046-7 Je 10 '15
- Hints for American exporters. F. Schreiberman. *Eng M* 49:662-71 Ag '15
- How to secure foreign trade. F. Schreiberman. *Eng M* 49:900-5; 50:86-92, 293-300 S-N '15
- How to sell to Latin-America. A. Del Mar. *Il Eng M* 50:341-56 D '15

- In time of war, prepare for trade. D. Wells. *Iron Tr R* 57:998-9 N 18 '15
- Limitations on association activities in developing export trade. P. T. Cherington. *Textile World* 49:217-19 My '15
- Meeting of the 2d National foreign trade convention. *Elec W* 65:253-4 Ja 23 '15
- Metal-working machinery April exports show \$2,000,000 increase or 150 per cent. *Iron Age* 95:1346-7 Je 17 '15
- Selling railway supplies to European countries. W. S. Hiatt. *Il Ry Age* 59:901-4 N 12 '15
- Trade commission gathering views on export combinations. *Ry R* 57:704-5 N 27 '15
- What business asks of trade commission. *Iron Age* 95:1293-4 Je 10 '15
- See also South America—Commerce; United States—Commerce
- Express companies**
- Express companies granted higher rate. *Ry Age* 59:214-15 Jl 30 '15
- Meeting the problems of the express companies. B. D. Caldwell. *Ry Age* 58:367-9 F 26 '15
- Minnesota express rate case. R. H. Tucker. *J Account* 19:107-17 F '15
- Railway revenue and the parcel post. V. L. Bradley. *Eng M* 48:593-6 Ja '15
- Statistics of express companies for 1914. *Ry Age* 58:1053 My 21 '15
- See also Parcel post
- Express rates. See Express companies**
- Extensometers**
- Effect of the end connections on the distribution of stress in certain tension members. C. Batho. *Il diags J Fr Inst* 180:129-72 Ag '15; Abstract (Tests prove lug angles valueless for insuring uniform stress distribution). *Eng Rec* 72:512-14, 608 O 23, N 13 '15
- Fixing the elastic limit standard. T. D. Lynch. *Il Iron Tr R* 57:791-1+ Jl 8 '15
- Extra crew laws. See Railroad law**
- Eye**
- Brightness-difference sensibility of the eye under various brightness of test-fields and surroundings. P. W. Cobb. *J Fr Inst* 180: 235-7 Ag '15
- Colored glasses for eye protection. M. Luckiesh. *Iron Tr R* 57:437-8 S 2 '15
- Effect of ultra-violet rays on the eye. *Sci Am* 113:323 O 9 '15
- Effect on the eye of ultra-violet light. W. E. Burge. *Il diags Elec W* 65:912-14 Ap 10 '15; Abstract. *Sci Am S* 80:345 N 27 '15
- Efficiency of the eye under different conditions of lighting; the effect of varying the distribution factors and intensity. C. E. Ferree and G. Rand. *Il Illum Eng Soc* 10:407-47 no 6 '15
- Eye and illumination. H. E. Mahan. *Gen Elec R* 18:268-72 Ap '15
- Eye protection for grinders and machinists. H. W. Davie. *Il Mach* 21:570-1 Mr '15
- Further experiments on the efficiency of the eye under different conditions of lighting. C. E. Ferree and G. Rand. *Il plan Illum Eng Soc* 10:448-501 no 6 '15
- Illumination and the human eye. *Elec W* 65: 624-5 Mr 6 '15
- Minimum visual angle. *Sci Am S* 80:93 Ag 7 '15
- Mode of action of ultra-violet radiation in injuring the refracting media of the eye. W. E. Burge. *J Fr Inst* 180:477-8 O '15
- Proper eye protection. W. B. McKibbin. *Il Mach* 21:296 D '14
- Résumé of the physical, physiological and psychic phases of vision. N. M. Black. *diags Illum Eng Soc* 10:562-86 no 7 '15
- Retinal sensibilities related to illuminating engineering. P. G. Nutting. *J Fr Inst* 180:482-4 O '15
- Searching for a reason for eye fatigue. M. Luckiesh. *Elec W* 66:576-8 S 11 '15
- See also Color blindness; Eyestrain; Goggles; Light; Spectacles
- Eyestrain**
- Efficiency of the eye under different conditions of lighting; the effect of varying the distribution factors and intensity. C. E. Ferree and G. Rand. *Il Illum Eng Soc* 10:407-47 no 6 '15

Eyestrain—Continued

- Ferree test for eye fatigue; with discussion. J. R. Cravath. *Illum Eng Soc* 9:1033-59 no 9 '14
- Further experiments on the efficiency of the eye under different conditions of lighting. C. E. Ferree and G. Rand. *Il plan Illum Eng Soc* 10:448-501 no 6 '15
- Life-study of patients. G. M. Gould. *Sci Am* 8:79:226-7 Ap 10 '15
- Light and the human machine. *Illum Engr* 8:335-8 Ag '15

F**Factories**

- Dry rot in factory timbers. F. J. Hoxie. *Eng Rec* 71:336-7 Mr 13 '15
- Economical design of factory buildings. W. E. King. *Assn Eng Soc J* 53:293-307 Je '14; Same cond. *Ind Eng* 14:289-93 Jl '14; Same cond. *Eng & Contr* 42:133-41 Ag 5 '14; Same cond. *Eng M* 48:91-5 O '14; Same cond. *Mach* 21:341-4 D '14; Discussion (Track layouts for industrial plants). G. H. Herrold. *Assn Eng Soc J* 52:307-10 Je '14; Same. *Eng N* 72:357 Ag 13 '14
- Economical system of construction; suggested design for factory or warehouse. H. E. Barr. *Il diag Iron Age* 95:885-7 Ap 22 '15
- Efficient planning in mercantile structures: the Kuppenheimer factory building, Chicago, Ill. *Il plan Brickb* 23:291-3 D '14
- Factory built at 60 cents per square foot: the Hart & Hutchinson plant at New Britain, Conn. *Il plan Iron Age* 95:231-3 Ja 28 '15
- Faucet manufacturing plant, Chicago. *Il Metal Work* 84:396 S 24 '15
- Inclined walkways replace stairs and elevators in new Victor building at Camden, N. J. *Il plans Eng Rec* 72:656-7 N 27 '15
- Logic of the one story factory. G. D. Crain, Jr. *Iron Tr R* 57:138-41 Jl 15 '15
- Making sprocket chain without waste. *Il Iron Age* 95:1105-9 My 20 '15
- Manufacture of the Diesel engine: production processes and the plant of the Busch-Sulzer bros., St. Louis. O. J. Abell. *Il diag plan Iron Age* 95:57-64 Ja 7 '15
- Methods and costs in constructing factory building at Houston, Texas. L. A. Hoynck. *Il diag Concrete Cem* 6:59-63 F '15
- Model factory building for small plants. *Il plan Iron Age* 95:188-91 Ja 21 '15; Same. *Metal Work* 83:274-6 F 12 '15; Same. *Eng & Contr* 43:144-5 F 17 '15
- New plant of the Crane co., Chicago. *Il plan Iron Tr R* 57:96-7 Jl 8 '15
- Plant with heavy tools on concrete piling. *Il Iron Age* 95:179-81 Ja 21 '15
- Prevention of dry rot in mill buildings. F. J. Hoxie. *Il Eng Rec* 71:400-1 Mr 27 '15
- Reducing the fire hazard in a factory. H. A. Russell. *Il Iron Age* 96:741-3 S 30 '15
- Rehabilitation of existing plants as a factor in production costs. H. V. Coes. *Il plans Eng M* 49:357-71, 560-73 Je-Jl '15
- Reinforced concrete factory buildings; abstracts. F. W. Dean. *Am Soc M E J* 37:9 Ja '15; *Iron Tr R* 56:518-4 Mr 11 '15; Discussion. *Am Soc M E J* 37:9-11 Ja '15
- Treated timber for factory construction. F. J. Hoxie. *Eng Rec* 71:107-8 Ja 23 '15; Same. *Eng & Contr* 43:563-4 Je 23 '15; Same cond. *Eng M* 48:896-8 Mr '15
- Value of preliminary sketches and layouts in production work. A. A. Dowd. *diag Horseless Age* 26:232-4 S 1 '15
- Wide column spacing effects economy in factory floor area. E. W. Stern. *diag Eng Rec* 71:177 F 6 '15

See also Automobile factories; Cotton mills; Factory laws; Factory management; Iron works; Knitting mills; Loft buildings; Mills and millwork; Steel works; Textile mills; Water supply for factories

Heating and ventilation

- Combined heating and sprinkler system for a factory building; Wheelock, Lovejoy & co., Cambridge, Mass. C. L. Hubbard. *Il plans Heat & Ven* 12:13-17 O '15

- Factory building equipped with outside air ducts. *Il plans Heat & Ven* 12:19-25 Ap '15
- Factory with down ventilation through columns. *Il plan Eng N* 73:1012-13 My 27 '15
- Heating and ventilating a factory building. *Il plans Metal Work* 83:889-71-4 My 7 '15
- Heating and ventilating factories. *diag Iron Age* 95:243 F 11 '15
- Heating and ventilating industrial plant. J. H. O'Brien. *Il Metal Work* 83:819-22 F 26 '15
- Heating and ventilating system of American cigar co.'s plant. W. L. Durand. *Il plans Power* 41:460-2 Ap 6 '15
- Heating and ventilating system that conserves the comfort of 15,000 workers at the Ford plant in Detroit. *Il Sci Am* 8:280 O 30 '15
- Measure of comfort in factories; construction and use of the katathermometer. J. A. Seager. *Il Heat & Ven* 12:24-7 S '15
- Model factory building for small plants. *Il plan Iron Age* 95:188-91 Ja 21 '15; Same. *Metal Work* 83:274-6 F 12 '15; Same. *Eng & Contr* 43:144-5 F 17 '15
- Relation of windows and ventilation in factory buildings. *Heat & Ven* 12:49 Ag '15
- Ventilation of industrial plants. C. T. Graham-Rogers and W. T. Doyle. *Metal Work* 83:283-4 F 19 '15; Same. *Dom Eng* 71:4-5 Ap 3 '15
- Ventilation standards for factories. *Iron Age* 95:283 Ja 28 '15

Lighting

- British government committee reports on factory lighting. *Elec R & W Elec'n* 67:810-11 O 30 '15
- Code for better industrial lighting. C. E. Clewell. *Il Elec W* 66:1185-7 N 20 '15
- Efficient lighting for industrial workers. F. Schwarze. *Il Metal Work* 83:662-4 My 7 '15
- Examples of modern factory lighting by gas. *Il Illum Engr* 8:339-42 Ag '15
- Factory lighting. G. H. Stickney. *Gen Elec R* 18:67-71 Ja '15; Same cond. *Eng M* 48:912-15 Mr '15; Same cond. *Sci Am* S 79:363 Je 5 '15
- Factory lighting by high pressure gas. A. E. Broadberry. *Il Illum Engr* 8:199-202 My '15
- Factory lighting; with discussion. O. R. Hogue and A. O. Dicker. *Illum Eng Soc* 9:974-89 no 9 '14
- First report of the departmental committee on the lighting of factories and workshops. *Illum Engr* 8:365-90, 420-2 S-O '15
- Industrial lighting by mercury vapour lamps. *Il Illum Engr* 8:344-5 Ag '15
- Light and the human machine. *Illum Engr* 8:335-8 Ag '15
- Light as a factor of efficiency. W. A. D. Evans. *Il Textile World* 48:195-9, 354-7 N-D '14
- Lighting in factories and workshops. *Engineer* 120:262 S 10 '15
- Lighting of factories and workshops. *Il Am Gas Light J* 103:257-8 O 25 '15
- Overhead shop lighting. *Il Illum Engr* 8:343 Ag '15
- Problem of mill lighting. *Textile World* 50:81-5 O '15
- Suggested code of lighting for factories, mills and other work places in the United States. *Illum Engr* 8:414-19, 451-5 O-N '15 (to be cont)

Location

- Effect of climate on location of manufacturing plants. W. M. Booth. *Sci Am* S 79:219 Ap 3 '15
- Problems involved in industrial pioneering. L. L. Anthes. *Foundry* 43:82-3 F '15
- Rehabilitation of existing plants as a factor in production costs. H. V. Coes. *Il plans Eng M* 49:357-71, 560-73 Je-Jl '15
- Factory hospitals. See Hospitals, Factory
- Factory laws**
- Existing requirements regarding lighting in factories, schools, etc., in various countries. *Illum Engr* 8:381-3 S '15
- How state laws compel removal of dust. H. C. Estep. *Il Foundry* 43:48-51 F '15; Same. *Iron Tr R* 56:415-22 F 25 '15
- Modern sanitation in factories. J. Graham. *Il diag Dom Eng* 69:393-7 D 26 '14
- See also Foundry laws

Factory management

- Balancing production with sales. C. W. Thayer. Mach 21:368 Ag '15
- Checking freight charges. P. A. Smith. Iron Age 95:536 Mr 4 '15
- Economies of a manufacturing plant. J. S. Branne. Assn Eng Soc J 54:53-62 F '15
- Eisemann's train-dispatcher system. J. E. Schipper. II plans Automobile 32:580-5 Ap 1 '15
- Factory cleanliness—its meaning, application and results. J. D. Hackett. Ind Eng 15:24 F '15
- Ford methods and the Ford shops. H. L. Arnold; F. L. Faurote. II Eng M 47:179-203, 331-33, 507-32, 667-92, 857-86; 48:33-60, 338-66, 524-50, 704-21, 859-76; 49:67-87, 184-201, 373-98 My-O, D '14-Je '15
- Four-part factory inventory system. H. A. Russell. Iron Age 95:1218-25 Je 8 '15
- Handling of repair work in the factory. A. A. Dowd. Iron Age 95:994-5 My 6 '15
- How to organize your night force. H. C. White. Iron Tr R 56:1056-8 My 27 '15; Same. Iron Age 95:1174-6 My 27 '15; Same. Ind Eng 15: 95-7 S '15
- How to use statistics in management. F. G. Coburn. Eng M 49:717-23 Ag '15
- Increased efficiency. A. A. Dowd. Sibley J 29: 157-63 F '15
- Industrial fatigue; abstract of report to the British association. Engineer 120:292 S 24 '15
- Industrial safety and principles of management. W. P. Barba. Am Soc M E J 37:692-5 D '15; Same cond. Iron Age 96:1232-4 N 25 '15
- Locating an executive in the factory. H. A. Russell. plan Iron Age 95:344-5 F 11 '15
- Measurement of efficiency. H. L. Gantt. Iron Tr R 55:1131-3 D 17 '14; Same. Ind Eng 14: 463-5 D '14; Same. Iron Age 94:1320-1 D 3 '14; Same. Automobile 31:1104-5 D 17 '14; Same cond. Ry Age (Mech ed) 89:249-51 My '15; Same cond. Metal Work 83:725-6 My 31 '15; Abstract. Eng M 48:577-80 Ja '15; Abstract; with discussion. Am Soc M E J 37:11-13 Ja '15
- More about the human factor. D. M. Myers. Eng M 49:801-8 S '15
- Ordering tools and supplies in the factory. P. W. Blair. Mach 21:745 My '15
- Panic economies and emergency problems with especial reference to the present industrial situation. F. A. Waldron. Am Soc M E J 36:413-17 D '14; Same cond. Ind Eng 14: 397-400 O '14; Discussion. Am Soc M E J 36:417-19 D '14
- Preventing losses in factory power plants. S. J. H. White. Iron Age 95:777-9, 848-9 Ap 8-15 '15
- Reduction of power costs in a factory power plant. T. K. Roberts. diags Ind Eng 14:445-50 D '14
- Relation between production and costs. H. I. Gantt. Am Soc M E J 37:466-8 Ag '15; Same. Am Gas Light J 103:54-5 Jl 26 '15; Same. Iron Age 95:16-18 Jl 1 '15; Same. Mach 21:1000-2 Ag '15; Same. Textile World 49:510-13 Ag '15; Discussion. Am Soc M E J 37:468-75 Ag '15; Abstract of discussion. Iron Age 96:24-5 Jl 1 '15
- Relation of the inspection department to the management. F. B. Corey. Ind Eng 15:17-18 Ja '15; Same. Iron Age 95:566-7 Mr 11 '15
- Results of factory standardization. C. B. Auel. II diags Iron Tr R 57:126-30 Jl 15 '15; Abstracts. Iron Age 94:1280-2 D 3 '14; Ind Eng 14:458-60 D '14; Am Soc M E J 37:13-15; Discussion. 37:15-16 Ja '15
- Routing—schedule and despatch. G. D. Babcock. II Ind Eng 14:427-31 N '14
- Scientific management for the factory of moderate size. D. T. Farnham. Eng M 50:46-51 O '15
- Shop system of the American machine & foundry co. H. K. Hammond. diags Mach 21:448-50 F '15
- System in a factory stock department. G. H. Culver. II Eng M 49:174-83 My '15
- Value of preliminary sketches and layouts in production work. A. A. Dowd. diags Horseless Age 36:232-4 S 1 '15
- Value of specialization in factory. A. A. Dowd. II diags Iron Tr R 57:259-63 Ag 5 '15
- Waste in hiring and discharging employees. M. W. Alexander. Sci Am S 79:102-3 F 13 '15; Same cond. Am Gas Light J 103:43-4 Jl 19 '15; Abstract. Iron Age 94:1032-3 O 29 '14; Abstract. Metal Work 82:609-10 N 6 '14; Abstract. Eng M 48:733-6 F '15
- See also Cost accounting; Employees; Employment systems; Factory restaurants; Mechanical handling; Purchasing; Records; Routing systems; Scientific management; Shop management; Stores systems; Time study; Welfare work in industry
- Factory mutual companies**
Insurance methods for payment of large losses. J. P. Gray. Textile World 49:228-30 My '15
- Factory restaurants**
Eliminating the dinner bucket. E. W. Pargny. II Iron Tr R 55:1089-91 D 10 '14
- Factory sanitation**
Industrial betterment. F. E. Cardullo. II Mach 22:175-9 N '15
- Modern sanitation in factories. J. Graham. II diags Dom Eng 69:393-7 D 26 '14
- Toilet regulations for industrial establishments: report of committee. Boston Soc C E J 2:79-89 F '15; Same cond. (Sanitation in shops and factories) Eng M 49:100-1 Ap '15
- See also Dust removal; Factories—Heating and ventilation; Foundry sanitation; Toilet rooms; Water supply for factories
- Factory towns.** See Model towns
- Factory waste.** See Refuse and refuse disposal; Trade waste
- Fairport, New York**
- Bridges**
- Lift bridge constructed on 4 per cent. grade. C. R. Waters. II Eng N 78:705-6 Ap 15 '15
- Fall River, Massachusetts**
- Bridges**
- Fall River bridge. J. W. Rollins. II diags Boston Soc C E J 1:67-81 F '14
- Sanitary affairs**
- Fall River mills will benefit by \$3,000,000 water and sewerage project. diag Eng Rec 72:501-3 O 23 '15
- New water-conservation scheme at Fall River, Mass. diag Eng N 74:760-1 O 14 '15
- Water supply**
- Fall River's proposed water supply system. II diag Sci Am 113:353+ O 23 '15
- Plan for condensing-water supply for Fall River. H. S. Knowlton. plan Power 42:648-4 N 9 '15
- Family resemblances.** See Heredity
- Fancy work**
See also Knitting
- Fans, Electric**
Electric fans in the winter: installed in the cold-air intakes of furnaces to increase temperature and reduce coal consumption. P. W. Gumaer. plans Elec W 65:229-31 Ja 23 '15; Abstract. Ind Eng 15:79 Ag '15; Abstract. Heat & Ven 12:46-7 S '15
- Gyrating fans. II Elec W 66:1110 N 13 '15
- New departure in electric-fan construction. II Elec R & W Elec'n 66:313-14 F 13 '15
- Running a fan economically. Colliery 35:398 F '15
- Westinghouse electric fans for 1915. II Elec R & W Elec'n 66:265-9 F 6 '15
- Fans, Exhaust**
Exhaust fan ratings and pipe diameters. Metal Work 83:721-2 My 21 '15
- Fans, Mechanical**
British Portland cement making machinery: application of fans. II diags Engineer 120: 102-5 Jl 30 '15
- Fan trouble solved by ball bearings. F. E. Rogers, Jr. II diag Textile World 49:569-71 Ag '15
- Fans for ventilating work. C. L. Hubbard. Eng M 48:385-92 D '14; Same. Eng & Contr 43:197-9 Mr 3 '15
- New ventilating fan and blower. II Power 40: 919 D 29 '14

Fans, Mechanical—Continued

- Notes on fans. A. A. Potter and S. L. Simmering. *Power* 41:816 Je 15 '15
 Outline specification of ventilating fan, M. B. Smith. *Power* 42:772 N 30 '15
 Performance and selection of centrifugal fans. F. L. Busey. *Heat & Vent* 12:31-7 Ap; 32-5 My '15
 Problems in power-plant design. (Engineers' study course) C. L. Hubbard. *Power* 40:320-2 D 8 '14
 Reduction or elimination of noise attending the operation of mechanical ventilating machinery. R. W. Pryor, jr. plans *Heat & Vent* 11:26-9 Ag '14; Same. *Iron Age* 94:310-11 Jl 23 '14; Same. *Metal Work* 28:275-6 S 4 '14; Same; with discussion. *Am Soc Heat & V E* 20:320-9 '14
 Testing of ventilating fans. T. Bryson. *Colliery* 35:465-7 Ap '15; Abstract. *Am Soc M E* J 37:124 F '15
 Theory and application of centrifugal fans. C. L. Hubbard. 11 diags *Dom Eng* 69:289-91, 357-9; 70:36-7 D 5, 19 '14, Ja 9 '15
 Theory and practice in warm-air heating. diags *Metal Work* 84:451-3 O 8 '15
See also Fans, Electric; Mechanical draft

Far East

- Winning of the Orient. E. H. Foot. 11 *Am Ind* 15:20-2 Ap '15

Faraday society

- 75th ordinary meeting, May 11. *Met. & Chem Eng* 13:499-501 Ag '15

Fare registers. See Street railroads—Fare registers**Fares. See Railroads—Fares; Street railroads—Fares****Fargo, North Dakota****Water supply**

- New water works ordinance adopted by referendum. *Eng & Contr* 43:396 My 5 '15
 Water-works charges and depreciation at Fargo. *Eng N* 73:994-5 My 20 '15

Farm buildings

- Grouping of farm buildings; examples from the work of Alfred Hopkins. J. J. Klaber. 11 plans *Arch Rec* 37:840-59 Ap '15
See also Dairy houses; Farmhouses; Poultry houses; Stables

Farm motors

See also Electricity on the farm; Tractors

Farm produce

See also Cotton; Forest products

Transportation

- Hearings on western freight rate advances. *Ry Age* 58:617-19, 700-3 Mr 19-26 '15
 Relation of farm produce hauling to permanent road improvements. W. A. McLean. *Eng & Contr* 42:215-17 Ag 26 '14

Farm produce, Marketing of

- Marketing our food products. *Sci Am S* 78:390 D 19 '14

Farm tractors. See Tractors**Farmhouses**

- Model design of Minnesota farm house. 11 plans *Bldg Age* 37:38-40 Mr '15
 Sewage disposal in rural country districts. E. D. Colby. *Metal Work* 84:341-3 S 10 '15
 Water supply and sewage disposal. *Metal Work* 84:398 S 24 '15
 Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. diags *Dom Eng* 72:194-7, 224-6, 254-6, 284-6, 313-15, 338-40 Ag 14-S 18 '15

Farms. See Demonstration farms**Fastenings**

- Fastenings for stone or steel. H. M. Schember. 11 diags *Bldg Age* 37:69-70 F '15

Fasting

- Hunger strikes an aid to good health. M. D. Pearl. *diag Sci Am* 112:67 Ja 16 '15

Fat extraction apparatus

- New apparatus for fat extraction. L. Selector. 11 J Ind & Eng Chem 7:371-3 O '15
 Simple fat extraction tube. C. A. Butt. *diag J Ind & Eng Chem* 7:180 F '15

Fatigue

- How excitement relieves fatigue. *Jakobl. Sci Am* 113:253 S 18 '15
 Industrial fatigue; abstract of report to the British association. *Engineer* 120:292 S 24 '15
Fatigue in metals
 Endurance of metals under repeated stresses; some new facts, and a new method of testing. diags *Locomotive* 30:130-42 Ja '15
 Fatigue and disease of metals. P. Kreuzpointner. *Iron Age* 95:950-1 Ap 29 '15
 Fatigue of copper alloys. E. Jonson. *Metal Ind n s* 13:283-4 Jl '15; Same. *Eng Rec* 72:22-3 Jl 3 '15; Same, with discussion. *Foundry* 48:311-12 Ag '15

Fats. See Oils and fats**Fatty acids. See Acids, Fatty****Faucets**

- Faucet boss problem solved by triangulation. diags *Metal Work* 84:245-6 Ag 20 '15

Fecundity

- Question of increase; how small is the chance that an individual will grow up. 11 *Sci Am* 113:292-3 O 2 '15

Federal reserve act

- Aspects of the financial problem of the railways; effect which the Federal reserve act will have on needs of railways for new capital. H. P. Willis. *Ry Age* 58:999-1002 My 14 '15

- Bank loans under the new conditions; borrowers' certified statements as a basis for national currency. F. G. Colley. *J Account* 18:418-26 D '14

Federal reserve banks and the reserve agent.

- F. B. Snyder. *J Account* 20:28-33 Jl '15

- New finance for steel and iron: how the new federal reserve system can be utilized to free business from the handicap of a rigid credit system through the employment of acceptances in liquidation of debt. I. F. Marcosson. 11 *Iron Tr R* 56:9-15 Ja 7 '15

Federal trade commission. See United States—Federal trade commission**Federation of trade press associations**

- 10th annual convention, Philadelphia, Sept. 7-9. *Elec R & W Elec'n* 67:537 S 18 '15

Feed water

- Boiler water and its troubles. C. M. Young. 11 *Colliery* 35:527-8+ My '15
 Centrifugal boiler-feed pumps. J. E. Kamps. *Power* 42:693-4 N 16 '15
 Centrifugal pumps for boiler-feed service. E. S. Adams. *Power* 40:934-5 D 29 '14
 Communications from the chemical laboratory of the Bavarian association for boiler inspection; abstract. *Am Soc M E J* 37:234-5 Ap '15
 Control for boiler-feed pumps and piping connections. plan *Elec W* 66:918-19 O 23 '15
 Farnsworth tilting traps. diags *Power* 41:90 Ja 19 '15
 Liquid weigher improved. J. W. Loef. diags *Power* 41:687-8 My 18 '15
 Measuring boiler feed water. *diag Elec Ry J* 48:284 Ag 14 '15
 Return traps for feeding boilers. K. M. Gilbert. diags *Power* 41:487-8 Ap 6 '15
 Saving in the pump room. W. E. Dixon. *diag Power* 41:171-2 F 2 '15
 Scientific boiler feeding. E. W. Nick. *Power* 41:34-6 Ja 5 '15
 Simple feed-water recorder. 11 *Elec Ry J* 46:242 Ag 7 '15
 Stopping pulsations in the feed line. A. A. Wood. diags *Power* 42:560 O 19 '15
See also Boilers; Feed water heaters; Feed water purification; Feed water regulators; Injectors; Pumps; Pumps, Centrifugal

Testing

- Economy of coal and boiler corrosion. G. J. Meyers. *Int Marine Eng* 20:176 Ap '15

Feed water heaters

- Direct-contact feed-water heater. 11 *Elec W* 66:375-6 Ag 14 '15

- Feed water heater used on geared locomotives. H. S. Johnson. diags *Ry Age* (Mech ed) 89:226 My '15

- Feed-water heaters in tandem. 11 *Power* 42:682 N 16 '15

Feed water heaters—Continued

- Heat transmission and tube length in marine feed-water heaters; abstract. L. Loeb. *Am Soc M E J* 37:483-7 Ag '15
- Home-made feed-water heater—ways to prevent oily water being drawn by feed pumps. *diags Elec W* 66:1203-4 N 27 '15
- Open feed-water heater. F. F. Jorgensen. *diags Power* 41:441 Mr 30 '15
- Putting gasket in heater. A. G. Solomon. *diag Power* 40:923-9 D 29 '14
- Weir feed water heater for locomotive boilers. *diags Ry R* 57:216 Ag 14 '15

Feed water heating

- Barometric condenser used as a water heater. K. M. Gilbert. *plan Power* 42:230 Ag 17 '15
- Basis for rational design of heat transfer apparatus. E. E. Wilson. *Am Soc M E J* 37:546-9; Discussion. 37:549-51 S '15
- Double-tank method of storing hot water. *plan Elec W* 66:24 J1 3 '15
- Economy of heating feed water. C. E. Anderson. *Power* 41:544-5 Ap 20 '15
- Locomotive feed water heating; discussion. H. H. Vaughan; F. F. Gaines. *Ry Age* 58:270-1 F 12 '15; Same. *Ry Age* (Mech ed) 89:12 Ja '15
- Ordinary wastes in the power plant. C. L. Hubbard. *plans Eng M* 49:809-17 S '15
- Saving of fuel on locomotives by the use of feedwater preheating; abstract. Strahl. *diags Am Soc M E J* 37:606-7 O '15
- Waste hot water heats feed-water. F. B. Hays. *diags Power* 41:55-6 Ja 12 '15
- Will Quizz, Jr. *Power* 41:707-8 My 25 '15

See also Feed water heaters

Feed water pumps. See Pumps, Centrifugal**Feed water purification**

- Bayer feed-water purifier. 11 *diags Power* 41:400-1 Mr 23 '15
- Boiler water and its treatment. C. M. Young. 11 *Colliery* 35:600-4 Je '15
- Distilled feed water. C. F. Hirschfeld. *Eng M* 49:724-30 Ag '15
- Freeing condensed steam from oil. *Sci Am* 112:325+ Ap 3 '15
- Increased temperature saves two-thirds of the water-softening chemicals. *diag Elec W* 65:480-1 F 20 '15
- Inexpensive method of treating boiler feed water. T. J. Crumley. *diag Elec Ry J* 46:152-3 J1 24 '15
- Method of softening and purifying feed water used by a Brooklyn company. *diags Elec W* 66:413-14 Ag 21 '15
- Purification of boiler feed water. E. Brown. *diag Met & Chem Eng* 13:156-60 Mr '15
- Removing oil from feed water. 11 *Eng M* 50:supl O '15
- Softening plant converts hard, impure river water into boiler feed supply. 11 *Eng Rec* 72:622-4 N 20 '15
- Treatment of water for locomotive use. W. A. Pownall. *Am Water Works Assn J* 2:434-41 Je '15; Same. *Ry R* 56:470-2 Ap 3 '15
- Twin grease extractor for feed water. 11 *Iron Age* 95:244 Ja 28 '15
- Water softener in feed-water treatment. H. R. Dorman. 11 *Power* 42:246-8 Ag 17 '15
- Water softening by electrochemical methods. C. P. Landreth. *Elec W* 64:1257-8 D 26 '14
- Water treatment. L. F. Wilson. *Ry R* 57:9-10 J1 3 '15

Feed water regulators

- Automatic control of feed water. *diags Elec W* 66:863-4 O 16 '15
- Eckel hydrostat; feed-water regulator. 11 *Power* 41:466 Ap 6 '15
- Foster automatic feed-water regulator. *diags Power* 41:512 Ap 13 '15
- McDonough automatic feed water regulator. 11 *diag Heat & Ven* 12:54-5 Ja '15; *Iron Age* 95:185 Ja 21 '15; *Power* 41:87 Ja 19 '15

Feed water strainer

- Power operated multi-basket strainer. 11 *Iron Age* 96:1055-6 N 4 '15; *Elec W* 66:1108 N 13 '15

Feeding and feeding stuffs

- Alcohol and fodder from wood. *Sci Am* 113:361 O 23 '15

Determination of the total fatty acids and other ether-soluble constituents of feed-stuffs. J. B. Rather. *J Ind & Eng Chem* 7:218-20 Mr '15

Ether-soluble matter in the nitrogen-free extract of feed-stuffs. J. B. Rather. *J Ind & Eng Chem* 7:613-15 J1 '15

Feeding mine animals. *Eng & Min J* 100:384 N 27 '15

Inorganic fodder. *Sci Am* 113:8 J1 3 '15

Quantitative determination of the amino acids of feeding-stuffs by the Van Slyke method. H. S. Grindley, W. E. Joseph and M. E. Slater. *Am Chem Soc J* 37:1778-81 J1 '15

See also Cottonseed meal; Ensilage; Forage plants

Fehling solution

Volumetric Fehling method using a new indicator. A. M. Breckler. *J Ind & Eng Chem* 7:37-8 Ja '15

Feldspar

Feldspar as a possible source of American potash. A. S. Cushman and G. W. Coggeshall. *J Ind & Eng Chem* 7:145-51 F '15; Same. *Met & Chem Eng* 13:99-104 F '15

Fellowships. *See* Scholarships and fellowships

Fence posts**Cost**

Determination of annual charge for ties, poles and fence posts. W. F. Goltra. *Ry Age* 58:1087 My 21 '15

Fence posts, Concrete

E. R. & P. concrete sign and post plant. *diags Ry Age* 58:1434-5 Je 18 '15

Concrete fence post factory of the C. B. & Q. R. R. co., Havelock, Neb. W. W. Eldridge. 11 *Concrete Cem* 6:99-101 F '15

Concrete fence posts for Lackawanna railway lines. 11 *Concrete Cem* 6:220 Ap '15

Concrete posts and poles; report to the American railway bridge and building association. G. E. Boyd. *Ry R* 56:360-2 Mr 13 '15

Design and cost of concrete posts used along Catskill aqueduct. *diags Eng & Contr* 43:287-8 Mr 31 '15

Practical suggestions given for building wire fences and concrete posts. R. N. Wheeler. *Eng Rec* 72:361-2 S 18 '15

Fences

Design and cost of two types of concrete and metal fence. F. D. Holbrook. 11 *Eng & Contr* 42:489 N 18 '14

Details of picket and board fences and grape arbor. J. Wavrek, Jr. *diags Bldg Age* 37:62 D '15

Practical suggestions given for building wire fences and concrete posts. R. N. Wheeler. *Eng Rec* 72:361-2 S 18 '15

See also Fence posts; Railroads—Fences

Cost

Cost of building a rod of fence in North Dakota. *Eng & Contr* 43:554 Je 23 '15

Cost of fence wire, wood and steel posts. *Eng N* 74:362 Ag 19 '15

Costs of three types of board fences. 11 *Eng & Contr* 43:446 My 19 '15

Fences, Concrete

4½ miles of concrete fence flank transit route on Sea beach line improvement in Brooklyn. 11 *Eng Rec* 72:68 J1 17 '15

Unique concrete fence as constructed in Porto Rico. 11 *plan Concrete Cem* 7:56 Ag '15

Fenders. *See* Motor trucks—Fenders

Fermentation

See also Bacteriology; Brewing; Enzymes

Ferric hydroxide

Effect of ammonium chloride upon ferric and aluminum hydroxides during ignition. H. W. Daudt. *J Ind & Eng Chem* 7:847-8 O '15

Ferrochrome

Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *U S Bur Mines Bul* 77:127-41 '14; *Excerpts. Iron Tr R* 56:972-5 My 13 '15

Ferroilmenite

Ferro-ilmenite arc on alternating-current circuits. I. Ladoff. *Elec R & W Elec'n* 66:871-2 My 8 '15

Ferromanganese

Electric furnace and the melting of alloys. R. S. Wile. *Iron Age* 95:1068-9 My 13 '15
Extraordinary year in ferro. *Iron Tr R* 56:95-6 Ja 7 '15

Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *U S Bur Mines Bul* 77:41-6 '14; Same. *Iron Age* 95:539-40 Mr 4 '15; Same. *Iron Tr R* 56:765-6 Ap 15 '15

Ferrophosphorus

Phosphate rock as furnace flux. J. A. Barr. *Il Iron Tr R* 56:183-5 Ja 21 '15

Ferro-silicon

Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *diags U S Bur Mines Bul* 77:154-74 '14; Same. *Iron Tr R* 56:862-7 Ap 29 '15

Ferrotungsten

Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *U S Bur Mines Bul* 77:177-84 '14; Excerpts. *Iron Tr R* 56:767-4 Ap 15 '15

Ferrous ferricyanide

Rhythmical precipitation of ferrous ferricyanide and ferrous hydroxide in jelly. H. J. M. Creighton. *Il Am Chem Soc J* 36:2357-60 N '14

Ferrous hydroxide

Rhythmical precipitation of ferrous ferricyanide and ferrous hydroxide in jelly. H. J. M. Creighton. *Il Am Chem Soc J* 36:2357-60 N '14

Ferrous sulphate

Oxidation and reduction without the addition of acid; the reaction between ferrous sulfate and potassium dichromate. M. Neidle and J. C. Witt. *Am Chem Soc J* 37:2360-8 O '15

Ferrovandium

Determination of manganese in ferrovandium. W. W. Clark. *Met & Chem Eng* 13:155-6 Mr '15

Ferryboats

Should ferry service be free? H. M. Chittenden. *Eng N* 74:264 Ag 5 '15
Southern Pacific ferry steamer Alameda. E. W. Olin. *Il plans Int Marine Eng* 20:194-8 My '15

See also Car ferries

Fertility. See Fecundity**Fertilizers and manures**

Agricultural fertilizers. *Sci Am S* 79:130 F 27 '15

Agricultural lime. *Sci Am S* 80:112 Ag 14 '15

Availability of organic nitrogen. J. E. Breckenridge. *Il J Ind & Eng Chem* 7:871-3 Ag '15

Bread from stones. C. G. Hopkins. *Sci Am S* 79:223 Ap 3 '15

Can sewage sludge be made valuable as a fertilizer? *Eng N* 73:593 Mr 25 '15

Chemistry of base goods fertilizer. E. C. Lathrop. *J Ind & Eng Chem* 7:223-33 Mr '15

Composition of certain fish fertilizers from the Pacific coast and the fertilizer value of degreased fish scrap. J. R. Lindemuth. *Il J Ind & Eng Chem* 7:615-19 JI '15

Contributions of the chemist to the fertilizer industry. H. W. Wallace. *J Ind & Eng Chem* 7:281 Ap '15

Cost accounting for fertilizer manufacturers. F. C. Belsor. *J Account* 19:165-81 Mr '15

Discovery of radium in coal. *Sci Am* 112:423 My 1 '15

Fertilizer from municipal waste. J. W. Turrentine. *Munic J* 39:739-40 N 11 '15

German agriculture in war time. *Sci Am* 112:216 Mr 6 '15

Germany's artificial fertilizers. *J Ind & Eng Chem* 7:74 Ja '15

Municipal fertilizer plant at Los Angeles, Calif. B. A. Heinly. *Eng N* 73:1083-4 Je 3 '15

Practical fertilizer for wartime in Germany. *Sci Am S* 79:99 F 13 '15

Radio-active fertilizers. *Sci Am S* 79:53 Ja 23 '15

Radium as a fertilizer. *Sci Am* 112:396 My 1 '15

Report of committee of American chemical society on fertilizer legislation. *J Ind & Eng Chem* 7:445 My '15

War and our chemical industries: agricultural industries. W. H. Bowker. *J Ind & Eng Chem* 7:59-61 Ja '15

World trade in fertilizers. *J Ind & Eng Chem* 7:716 Ag '15

See also Ammonia; Cyanamid; Gypsum; Phosphates

Fessenden oscillator

Fessenden oscillator to detect submarines. C. Moffett. *Elec R & W Elec'n* 66:738 Ap 17 '15
Principles of Prof. Fessenden's oscillator. *Il Sci Am S* 80:168, 170 S 11 '15

Fibers

Official method for determining crude fiber as applied to cottonseed meal. C. K. Francis. *Il J Ind & Eng Chem* 7:676-80 Ag '15

Paper-mill to pressroom; future fiber possibilities. W. B. Wheelwright. *Inland Ptr* 54:791-2 Mr '15

See also Textile fibers; Vulcanized fiber

Fibers, Textile. See Textile fibers

Fibrox

New heat-insulating material. *Eng N* 73:878-9 My 6 '15

Preparation and properties of fibrox; abstracts. E. W. Weintraub. *Met & Chem Eng* 13:315 My '15; *Eng M* 49:415 Je '15

Field coils. See Electric motors—Testing

Field museum of natural history, Chicago

Methods and plant used in constructing the foundations for the Field museum of natural history. *Il plans Eng & Contr* 44:402-5 N 24 '15

Structural features. *diags plan Eng & Contr* 44:226-7 S 22 '15

Field post. See Postal service, Military

Filens cooperative association

Industrial betterment. F. E. Cardullo. *Mach* 22:195-7 N '15

Files and filing (documents)

Card records of Los Angeles track work. G. E. Campbell. *Elec Ry J* 46:407-8 S 4 '15

Efficient and inexpensive filing system. G. W. Smith. *Concrete Cem* 7:35-6 JI '15

Filing and indexing of office computations. R. H. Jones. *Eng Rec* 72:128-9 JI 31 '15

Filing engineering clippings. H. A. Burr. *Eng Rec* 72:520 O 23 '15

Highway superintendent of Cook county, Illinois, simplifies filing system. *map Eng Rec* 72:473-4 O 16 '15

Indexing and filing technical literature. A. R. Kenner. *Eng & Min J* 99:851-6 My 15 '15

Indexing car equipment data. H. S. Cooper. *Elec Ry J* 46:1040-1 N 20 '15

Indexing car equipment data. N. Litchfield. *Elec Ry J* 46:877-8 O 2 '15

Labeling and filing plans used by the New York highway commission. *Eng & Contr* 42:324-5 S 30 '14

New system of filing building plans saves time. *Eng Rec* 72:596 N 13 '15

Observations on filing correspondence. C. T. Andrews. *Ry Age* 69:205 JI 30 '15

Railway-valuation office index and file system. H. J. Saunders. *Eng N* 74:894-6 N 4 '15

Files and rasps

Progress in machine shop methods. E. R. Norris. *Iron Tr R* 57:749 O 14 '15; Excerpt (Resharpening of files) *Iron Age* 96:1175 N 18 '15

Truing files with acid. J. P. Downs. *Mach* 21:954 Ag '15

Filing machines

Tilting table bench filing machine. *Il diag Iron Age* 96:1223 N 25 '15

Filling

Filling and dredging for a Jersey City freight terminal. *Il diag map Eng N* 72:1216-18 D 17 '14

Filters and filtration

Air bound filters. J. M. Caird. *Am Water Works Assn J* 2:103-6 Mr '15

Air-bound filters. R. S. Weston; J. W. Billms. *Eng Rec* 72:458 O 9 '15

Air-bound filters the chief difficulty in operating Wilmington's water purification plant. E. M. Hoopes, jr. *Il plans Eng Rec* 72:282-4 S 4 '15

Alliance water filters. T. Fleming, jr. *Il plan Eng N* 73:812-14 Ap 29 '15

Another milestone in filtration. *Eng Rec* 71:575 My 8 '15

Filters and filtration—Continued

- Baltimore filters abound in useful hints on concrete construction and design. J. W. Armstrong. *Il plans Eng Rec 71:583-6 My 8 '15*
- Baltimore water filtration plant. *Il plan diags Munic J 38:537-41 Ap 22 '15*
- Blackburn-Smith twin filter. *Il Int Marine Eng 20:91 F '15*
- Brass screen between sand and gravel eliminated in Cincinnati filter reconstruction. J. W. Elms. *Il Eng Rec 71:581-2 My 8 '15*
- Court forbids river pollution by filter wash-water. *Eng Rec 72:180-1 Ag 7 '15*
- Depth of filtering material and trickling filter efficiency. H. W. Clark. *Boston Soc C E J 2:57-61 F '15*
- Depth of trickling filters; arguments for and against making them more than seven feet deep. H. P. Eddy, H. W. Clark and G. W. Fuller. *Munic J 38:345-7 Mr 18 '15*
- Design features and cost of operating water filters of pressure type at New Canaan, Conn. *diags Eng & Contr 42:132-3 Ag 5 '14*
- Design of an anti-freezing water filter. W. M. Kinney. *diag Concrete Cem 6:38-9 Ja '15*
- Design of rapid sand water filtration plants. G. W. Fuller. *diags Eng & Contr 42:225-9 S 2 '14*
- Development of rapid sand filters in Ohio. F. Burgess. *Eng & Contr 44:337-9 O 27 '15*
- Economic depth of trickling filters. H. P. Eddy. *Boston Soc C E J 2:49-56 F '15*; Discussion. G. W. Fuller; H. P. Eddy. *2:63-73, 191-8 F, My '15*
- Economic size of sand filter beds. C. H. R. Fuller. *Eng & Contr 42:179 Ag 19 '14*
- Economy effected in the use of river sand as a filter medium at Moline, Ill. *Eng & Contr 43:236-7 Mr 17 '15*
- Economy of deep sewage filters explained on basis of "held" water and hydraulics. H. W. Clark. *Eng Rec 72:477-8 O 16 '15*
- Field of the slow sand filter—comparative capacity cost data. R. S. Weston. *Eng & Contr 42:313 S 30 '14*
- Filters balk at operating methods of city fathers. *Eng Rec 71:500 Ap 17 '15*
- Filtration of water: present practice as to the general component parts of rapid filter plants in Illinois. E. Bartow and P. Hansen. *plan Munic J 38:99-101 Ja 28 '15*
- Filtration plant, city of Decatur, Illinois. E. Ruthrauff. *Il Am Water Works Assn J 3: 455-64 Je '15*
- Limitations of water filters. G. W. Fuller. *Munic Eng 47:468-9 D '14*
- Lowell filtration plant for removing iron and manganese from water. W. B. Conant. *Il plan Munic J 39:613-15 O 21 '15*
- Marysville, Kan., filters handle excessively turbid water. C. C. Young. *Eng Rec 72:290-1 S 4 '15*
- New Blackburn-Smith twin feed-water filter. *Il Power 41:270 F 23 '15*
- New filtration plant at Quincy, Illinois. W. R. Gelston. *Il diag Am Water Works Assn J 2:446-62 Je '15*; Same. *Munic Eng 48:297-8 My '15*; Excerpts. *Eng N 73:626-7 Ap 1 '15*; Excerpts. *Eng Rec 71:424 Ap 3 '15*; Discussion. *Am Water Works Assn J 2:452-4 Je '15*
- New filtration works for Oldham. *Il diag Engineer 120:105-6, 112 J1 30 '15*
- New mechanical filter. *Il diags Engineer 119: 287-8 Mr 5 '15*
- New sedimentation basin will halve costs of sand cleaning at Philadelphia filters. F. D. West. *diags Eng Rec 71:591-3 My 8 '15*
- Opening of St. Louis filtration plant. *Il Eng N 73:1002 My 20 '15*
- Overhaul Bubbly creek filters, Chicago, after seven years. *Eng Rec 72:377 S 25 '15*
- Philadelphia water-filter operations in 1914. *Eng N 73:576-7 Mr 25 '15*
- Pure water for the army; various forms of field-service filters. *Il Sci Am S 80:89 Ag 7 '15*
- Purifying water by filtration. G. H. White. *Metal Work 84:624 O 22 '15*
- Rapid filter plant at Evanston, Ill. L. Pearse. *Il plans Am Water Works Assn J 2:160-79 Mr '15*
- Reasonable requirements in water filter performance. *Eng & Contr 42:249-50 S 9 '14*
- Reconstruction of the beds of the Cincinnati water-filtration plant. *Eng N 72:1249 D 24 '14*
- Results of task work without bonus in cleaning filter sand at Philadelphia. S. E. Thompson. *Eng Rec 70:608-9 D 5 '14*; Same. *Eng & Contr 42:579-81 D 23 '14*; Same cond., with discussion. *Am Soc M E J 37:102-4 F '15*; Same cond. (Efficiency study of filter cleaning) *Munic J 38:253-4 F 25 '15*
- River sand as a filter medium. L. A. Fritze. *Am Water Works Assn J 2:390-2 Je '15*
- Roughing filtration plant. *plans Engineer 119: 536 My 28 '15*
- St. Louis will operate world's largest mechanical filters next week; views. *Eng Rec 71:578-9 My 8 '15*
- Seven years' successful operation of double sand filtration plant at South Norwalk, Conn., in removal of objectional tastes and odors. H. W. Clark. *Eng & Contr 44:262-3 O 6 '15*
- Small mechanical-filter plant, Franklin Furnace, N. J. R. H. Eulich. *diags plan Eng N 74:776-9 O 21 '15*
- Small slow sand water-filter plant for the estate of J. P. Morgan, Jr. H. Gregory. *Il diags Eng N 72:1110-11 D 3 '14*
- Smith system of natural slow sand filtration. L. E. Smith. *Eng & Contr 42:247-9 S 9 '14*
- Standard apparatus and procedure recommended for sand analysis. P. Burgess. *Eng Rec 71:644*; Discussion. A. Hazen. *71:644-6 My 22 '15*
- Wash water salvage at Champaign and Urbana. H. E. Babbitt. *Am Water Works Assn J 2:393-6 Je '15*
- Water filtration hold-up at Ottawa, Ont. *Eng N 72:1167 D 10 '14*
- Water supply at Wilmington, Delaware. E. M. Hoopes, Jr. and J. M. Caird. *Il Am Water Works Assn J 1:111-34 Mr '14*; Same cond. *Eng & Contr 42:210-12 Ag 26 '14*
- World's largest rapid sand filter, St. Louis. *Il Sci Am 113:441 N 20 '15*
- See also Air filters; Oil filters; Sewage disposal—Filtration; Water purification; Water supply

Controllers

- Automatic control of new filters at Baltimore. J. W. Armstrong. *Eng & Contr 44:359 N 3 '15*
- St. Louis engineers test filter controllers. *diag Eng Rec 72:284-5 S 4 '15*
- Test of filter-rate controllers. E. E. Wall and G. G. Black. *plans Eng N 73:880-1 My 6 '15*

Patents

- Minneapolis filter patent-case decision. *Eng N 74:523 S 9 '15*
- Minneapolis loses filter infringement suit. *Eng Rec 72:191 Ag 14 '15*
- Niagara Falls water filter suit. *Munic J 39: 224 Ag 12 '15*

Testing

- Strength tests on strainer plates for Baltimore water filters. *diag Eng & Contr 43:108 F 3 '15*
- Water filter of new type, tested at Toronto, employs drifting sand principle; abstracts. G. G. Nasmith and F. Adams. *diag Eng Rec 71:464-5 Ap 10 '15*; *Engineer 119:355-6 Ap 9 '15*; *Eng & Contr 43:851-2 Ap 21 '15*; *Eng N 73:680-1 Ap 8 '15*; *Eng M 49:438-9 Je '15*

Filters and filtration (metallurgy)

- Filtration of slime. L. D. Mills. *Met & Chem Eng 13:724 O 15 '15*
- New continuous filter. *Il diags Met & Chem Eng 13:125-7 F '15*
- Raising round-filter vacuum. H. G. Thomson. *diags Eng & Min J 100:724 O 30 '15*
- Robacher filter. *Il diag Eng & Min J 99:740-1 Ap 24 '15*

Filters and filtration (technical chemistry)

- Efficiency of various methods for the filtration of sugar solutions. A. E. Roberts. *diags J Ind & Eng Chem 6:986-9 D '14*
- Official method for determining crude fiber as applied to cottonseed meal. C. K. Francis. *Il J Ind & Eng Chem 7:676-80 Ag '15*

Filtros

- Robacher filter. *Il diag Eng & Min J 99:740-1 Ap 24 '15*

Finance

South America

Financial developments in South-American countries. W: H. Lough. U S Bur For & Dom Com 103:1-42 '15

Financial statements

Financial statements as a basis of credit. J. E. Masters. J Account 19:334-43 My '15
Standardization of financial statements. F. Oakley. J Account 20:179-85 S '15

Fine arts. See Art

Finger prints

See also Identification

Finlay, Charles John, 1833-1915
Sketch. Sci Am 113:210 S 4 '15

Fir

Effect of steaming process of creosoting on strength of Oregon fir piling; abstracts. H. B. Macfarland. Eng Rec 70:487-8 O 31 '14; Eng & Contr 42:481-3 N 18 '14; Summary. Eng N 72:868 O 29 '14

See also Douglas fir

Fire. See Combustion; Fires; Fuel; Heating

Fire alarms

Alternating-current fire-alarm apparatus. II diag Elec W 66:1107 N 13 '15
Fire alarm attachment for recording pressure gauge. W. E. Haseltine. II diag Am Water Works Assn J 1:551-3 S '14; Same. Eng & Contr 42:453-4 N 11 '14
Fire alarm system for Chicago. II diag Munic Eng 48:229-31 Mr '15
Fire-alarm system of New York city. Elec R & W Elec'n 65:1132 D 12 '14
Interior fire-alarm system. II diag Elec W 65:1005 Ap 17 '15
New fire-alarm system for New York city. Elec R & W Elec'n 67:109 Jl 17 '15
San Francisco's new fire alarm station. J. M. Barry. II Munic J 39:337-40 D 2 '15
Signal box records. P. I. Patton. Munic J 39:397-8 S 9 '15
Thermopile fire detector. II Elec W 65:1478 Je 5 '15
Where electricity saves the seconds. Sci Am 113:15 Jl 3 '15

Fire apparatus

Amount of apparatus; average number of each kind per hundred thousand population in cities larger than and smaller than fifty thousand. Munic J 39:313-15 Ag 26 '15
Federal fire apparatus. II Munic J 39:328 Ag 26 '15
Fire department statistics; figures received directly from the chiefs of nearly eight hundred fire departments; tabulation. Munic J 39:287-313, 583 Ag 26, O 14 '15
Fire-fighting car at Duluth. II Elec Ry J 45:472-3 Mr 6 '15; Sci Am 112:479 My 23 '15
Horse-drawn fire apparatus; tabulation. Munic J 39:288-94, 581 Ag 26, O 14 '15
Installation and care of fire-protection apparatus. J. O. Benefel. plan Power 41:19 Ja 5 '15
Portable searchlights for fire departments. L. C. Porter and P. S. Bailey. II Gen Elec R 18:1144-5 D '15
Where the smoke helmet would be invaluable: a lesson from the New York subway fire. II Sci Am 112:65 Ja 16 '15

See also Fire engines; Hose; Hose couplings; Smoke helmets

Fire apparatus, Motor

Care of rubber tires on fire apparatus. A. H. Leavitt. Munic J 39:473-4 S 23 '15
Cost of auto apparatus at Schenectady, N. Y. G. M. Chase. Munic J 38:314 Mr 11 '15
Cost of fire apparatus in Douglas, Arizona. Munic J 38:470 Ap 8 '15
Electrically propelled fire apparatus. A. J. Marshall. II Elec R & W Elec'n 67:264-7 Ag 7 '15
Ford first aid chemical apparatus. II Horseless Age 35:542 Ap 21 '15
Motor fire apparatus. J. A. Anglada. Horseless Age 35:802 Je 16 '15
Motor-propelled fire apparatus; tabulation. Munic J 39:295-301 Ag 26 '15

New developments and recent installations announced since the last annual convention of the International association of fire engineers. II Munic Eng 49:107-13 S '15
Operating conditions of motor fire trucks. A. L. Clough. Horseless Age 35:244 F 17 '15
Packard fire truck with 3-ton chassis, for Farnassus, Pa. II Munic J 39:517 S 30 '15
Recent developments in fire-fighting apparatus—comparative statements of costs of operation. II Munic Eng 49:185-7 N '15
Statistics of motor fire apparatus; tabulation. Munic Eng 49:sup59-74+, sup60+ S-O '15
Storage-battery-drive tractor. G. Boughner. Munic Eng 49:150 O '15

See also Fire engines, Motor

Fire boats

Motor fire boat Delta II. II Int Marine Eng 20:492-3 N '15
Tacoma's fire boat. J. Bashford. II Munic J 39:582 O 14 '15

Fire brick

British Portland cement making machinery. Engineer 120:81-2 Jl 23 '15
Characteristics of firebrick for boiler furnaces. E. H. Tenney. diags Elec W 66:1086-7 N 13 '15
Deterioration of fireclay goods in ovens and retorts. T. Holgate. Am Gas Light J 103:113-18 Ag 23 '15
Examination of fire-bricks. W. H. Patterson. Met & Chem Eng 13:127-9 F '15
Fire brick. C. S. Reed; J. E. Johnson, jr. Met & Chem Eng 12:740 D '14
Firebrick for boiler furnaces. A. D. Williams. Power 41:287-8 Mr 2 '15; Same cond. Ind Eng 15:107-8 S '15
Firebrick for boiler settings. W: A. Heisel. Power 41:288-7 Je 29 '15
Manufacture and tests of silica brick for the byproduct coke oven. K. Seaver. II Am Inst Min E Bul 105:1913-27 S '15; Same. Met & Chem Eng 13:861-6 N 15 '15; Abstract. Am Soc M E J 37:610 O '15
New type of brick for hot-blast stoves. diags Iron Age 96:312-13 Ag 5 '15
Selecting refractories for the foundry: abstracts. W. H. Kelley. Iron Age 94:942-3 O 22 '14; Ind Eng 14:469-71 D '14
Selling refractory brick by the ton. Eng & Min J 99:196 Ja 23 '15

Fire departments

Chicago fire department. Munic J 39:840-1 D 2 '15
Cincinnati's fire department. II Munic J 39:283-7 Ag 26 '15
Fire department additions in 1915; tabulation. Munic Eng 48:270-1 Ap '15
Fire department statistics; figures received directly from the chiefs of nearly eight hundred fire departments; tabulation. Munic J 39:287-313 Ag 26 '15
Richmond, Va., fire department. Munic J 38:476 Ap 8 '15
Springfield, Mass., fire drill school. II Munic J 38:470-2 Ap 8 '15
Statistics of fire departments of American cities; tabulation. Munic Eng 49:sup46-57, sup57-8 S-O '15

See also Fire apparatus; Fire extinction; Fire protection

Fire engineers, International association of. See International association of fire engineers

Fire engines

Centrifugal pumps for fire engine service; abstract. A. Schacht. Am Soc M E J 37:408-9 Jl '15

Fire engines, Motor

Efficiency of the chemical engine. I. W. Sibrel. II Munic Eng 49:149-50 O '15
English motor fire engines. II Munic Eng 49:26-8 Jl '15
Gasoline pumping fire engines. E: F. Dahill. Munic J 38:469-70 Ap 8 '15

Testing

Tests of fire engines. Munic J 39:578-80 O 14 '15

Fire extinction

Extinguishing fire with kerosene. Sci Am S 80:115 Ag 21 '15

Fire extinction—Continued

Fire: extinguishing a blaze by smothering or by cooling. L. V. Redman. *Il Sci Am* 111:494 D 12 '14

Fire-extinguishing materials. Elec R & W Elec'n 67:371 Ag 28 '15

Flue gases for extinguishing fire in coal. G. Harker. *J Ind & Eng Chem* 7:801 S '15

Prevention of fire at sea. W. O. Teague. *Eng M* 49:118-16 Ap '15

Fire hose. See Hose.**Fire houses**

Automobile fire stations; general plan of one story building for small cities and suburbs. A. S. Augst. *Munic J* 38:656-7 My 13 '15

Fire engine house for a small town. *Il diag plan Bldg Age* 37:37-9 F '15

Holyoke central fire station. *Il Munic J* 38:803-4 Je 10 '15

Trenton's new engine house designed for motor apparatus exclusively. *Il Munic J* 38:656-6 My 13 '15

Fire inspection

Fire inspections in Boston; abstract. J. Grady. *Munic J* 37:890 D 17 '14

Fire insurance. See Insurance, Fire**Fire places. See Fireplaces****Fire pots**

Various constructions of charcoal fire pots. *diag Metal Work* 34:649-51 N 19 '15

Fire prevention. See Fire extinction; Fire protection**Fire protection**

Blower systems for heating and ventilating and stock and refuse conveying systems: committee report. A. M. Feldman. *diag Am Soc Heat & V E* 20:412-20 '14

Fire-fighting methods at the Mountain View mine, Butte, Mont. C. L. Berrien. *11 pls Am Inst Min E Bul* 102:1215-45 Je '15

Fire prevention measures in the Equitable building. E. R. Hardy. *Il Arch & Bldg* 47:179-83 My '15

Fire prevention progress at Boston. *Eng Rec* 70:629 D 12 '14

Fire protection for the factory. *Il Ind Eng* 15:1-6, 35-9, 61-6, 90-4 Ja-F, Ag-S '15 (to be cont)

Fire protection on the national forests in 1914. H. S. Graves. *Am For* 21:47-50 Ja '15

Handling gasoline. *Munic J* 39:315-16 Ag 26 '15

Hotels and fires. E. R. Hardy. *Arch & Bldg* 47:126-8 Mr '15

Insurance as an aid to engineers. N. H. Daniels. *Boston Soc E J* 2:91-108 Mr '15

Minnesota highway commission aids in building firebreaks. *Eng Rec* 71:780 Je 19 '15

National fire protection association annual convention. *Eng Rec* 71:667 My 22 '15

Preparedness and fire protection. S. Brockwell. *Munic J* 39:319 Ag 26 '15

Problems in power-plant design. (Engineers' study course) C. L. Hubbard. *Power* 40:831-2; 41:32-4 D 29 '14-Ja 5 '15

Protecting congested districts in cities. R. M. Potts. *Sci Am S* 80:270-1 O 23 '15

Reducing the fire hazard in a factory. H. A. Russell. *Il Iron Age* 90:741-3 S 30 '15

Safeguarding fire hazards in old buildings. Elec R & W Elec'n 67:992-3 N 27 '15

Safety precautions in New York subway; report made to the mayor by the city fire department. *Elec Ry J* 40:601 S 18 '15

Salem (Mass.) conflagration; with discussion. C. H. Smith. *Il W Soc E J* 20:172-92 F '15

Underwriters and fire protection association report on Edison fire. *Il diag plan Eng Rec* 71:239-42 F 20 '15

See also Fire apparatus; Fire departments; Fire escapes; Fire extinction; Fire inspection; Fire service; Fireproof construction; Fireproofing; Forest fires; Inflammable liquids; Railroads—Fire protection

Laws and regulations

Garage men protest against 50-foot rule in New York. *Horseless Age* 35:138-40 Ja 27 '15

Regulations governing refrigerators in New York city. *Power* 40:862 D 15 '14

Fire protection association, National. *See* National fire protection association

Fire-resisting materials

Concrete as fire-resisting material. T. A. Edison. *Eng Rec* 71:598 My 8 '15

Fire-resisting qualities of concrete. W. M. Kinney. *Concrete Cem* 8:40 Ja '15

Fire-resisting wood. *Sci Am S* 79:69 Ja 30 '15

Gypsum block in the Edison fire. S. G. Webb; V. G. Marani. *Eng Rec* 71:88 Ja 16 '15

Sheet metal prevents spread of large fire. S. H. Bunnell. *Il Metal Work* 33:110-12 Ja 8 '15

Use of gypsum for fire protection. V. G. Marani. *Eng M* 48:596-8 Ja '15

See also Concrete construction—Fire resistance; Refractory materials

Fire service

Cincinnati builds high-pressure fire service system. J. A. Miller. *Il diag Eng Rec* 71:590 My 8 '15

Cincinnati high-pressure fire hydrants. *diag Eng N* 74:153 J 22 '15

Design details of the Cincinnati high pressure fire system. *diag Eng & Contr* 43:629-32 Je 16 '15

Equitable hydrant rentals and better methods for apportioning fire protection cost. J. W. Alvord. *Am Water Works Assn J* 1:95-102 Mr '14; Same. *Eng & Contr* 41:579-80 My 20 '14; Same. *Munic J* 36:850-2 Je 11 '14; Same cond. *Eng Rec* 69:586-7 My 23 '14; Discussion. *Am Water Works Assn J* 1:538-45, 697-703 S-D '14

Experiences with electrically operated valve installations, under remote control, in New York city. A. Williamson. *Eng & Contr* 44:225 S 23 '15

Fire alarm attachment for recording pressure gauge. W. E. Haseltine. *Il diag Am Water Works Assn J* 1:551-3 S '14; Same. *Eng & Contr* 42:453-4 N 11 '14

Functions of a water system with respect to domestic service and fire protection. E. B. Proctor. *Eng & Contr* 44:136-7 Ag 25 '15

Hydrant tests in Chicago indicate cheaper maintenance possibilities. *Il Eng Rec* 71:483-4 Ap 17 '15

National standard hose couplings and fittings for public fire service. *Il diag U S Bur Stand Circ* 50:1-23 '14; Summary. *Sci Am S* 79:304 My 8 '15

Question box: Should private fire services be shut off, in case of fire in sprinkler protected buildings? *Am Water Works Assn J* 1:662-0 D '14

San Francisco's auxiliary pumping plants. *Power* 42:684-5 N 16 '15

San Francisco's auxiliary water-supply for fire protection. A. J. Cleary. *Il plan diag Eng N* 73:290-7 F 18 '15

San Francisco's auxiliary water supply system for fire protection. M. M. O'Shaughnessy. *Eng & Contr* 44:294-5 O 13 '15

See also Fire apparatus; Hydrants; Standpipes; Water supply

Fire stations. See Fire houses**Firearms**

Rifling of firearms. A. Keller. *diag Sci Am S* 79:277-8 My 1 '15

See also Artillery; Guns; Pistols; Rifles

Sights

Handicapping an army by poor sights. J. H. Parker. *Sci Am S* 80:280 O 30 '15

Telescope sights for fighting rifles. E. C. Crossman. *Il Sci Am* 118:118-19 Ag 7 '15

Fireboxes, Locomotive. See Locomotive fireboxes**Firebreaks. See Fire protection****Firedamp**

Firedamp detector; abstracts. H. R. Webster. *diag Eng M* 49:108-9 Ap '15; *Colliery* 36:67-8 S '15

See also Mine gases

Fireflies

Experiments on the nature of the photogenic substance in the firefly. E. N. Harvey. *diag Am Chem Soc J* 37:396-401 F '15

Fireplaces

Efficient smokeless grate for domestic heating. *Il Sci Am* 113:186 Ag 28 '15

Fire-place heater design competition. *Il Am Gas Light J* 103:124 Ag 23 '15

Fireplaces—Continued

- Monumental treatment of the fireplace. D: E. Fulton. *Il* *diag*s Brickb 23:297-300 D '14
Open fireplaces as auxiliary heaters. T. W. Reynolds. *diag* Metal Work 82:741 D 4 '14
Proportioning fireplaces and flue areas. Metal Work 82:800 D 18 '14
Vogue of the wood-burning fireplace. S. C. Covert. *Il* *Bldg* Age 37:47-8 N '15

See also Mantels

Fireproof construction

- Concrete construction and the Edison fire. L. C. Wason. *Textile World* 48:537-40 F '15
Example of fire-resistant windows and structure: building for the Reliance gauge column co., Cleveland, Ohio. *Il* *Eng* N 72:1331 D 31 '14

- Fire protection for the factory. *Il* *Ind Eng* 15: 1-5, 35-9, 61-6 Ja-F, Ag '15

- Fire-resisting qualities of concrete buildings at the Edison factory, West Orange, N. J. *Il* plan Concrete Cem 6:29-30 Ja '15

- Floor surfaces in fireproof buildings; abstracts. S. E. Thompson. *Ind Eng* 14:451-4 D '14; *Iron Age* 94:1527 D 31 '14; *Am Soc M E J* 37:7-8 Ja '15; *Sci Am S* 79:410-11 Je 26 '15

- Rapid destruction of fireproof buildings: results of the fire in the Edison works at West Orange, N. J. S. H. Bunnell. *Il* *Iron Age* 94: 1331-3 D 17 '14

- Trend of modern home building. *Il* plans *Bldg Age* 37:71-2 D '15

- What is fireproof construction? *Iron Tr R* 56: 526 Mr 11 '15

See also Building laws; Concrete construction; Concrete construction—Fire resistance; Fire-resisting materials; Partitions; Steel construction

Fireproofing

- Fireproofing mine shafts. *diag*s *Colliery* 35: 441-2 Mr '15

- Fireproofing mine shafts. *Eng & Min J* 99: 421 F 27 '15

- Fireproofing wood for passenger car construction on British railways. *Ry R* 57:639 N 27 '15

- Tests of fireproofed wood. *Eng N* 74:309 Ag 12 '15

See also Fireproof construction

Fires

- Comments on the Edison fire. *Eng N* 73:33-40 Ja 7 '15

- Concrete pavement damaged by a fire. C. C. Wiley. *Eng N* 73:936-7 My 13 '15

- Disastrous fire at Edison factory. *Il* plan *Eng Rec* 70:660-2 D 18 '14

- Fire damages the Edison plant. *Il* *Elec W* 64: 1132-3 D 13 '14

- Fire in the Edison works at West Orange, N. J. *Il* *Eng N* 72:1233-7 D 17 '14

- Fire-resisting qualities of concrete buildings at the Edison factory, West Orange, N. J. *Il* plan Concrete Cem 6:29-30 Ja '15

- Fire wrecks Roebling insulated wire plant. *Il* *Eng Rec* 71:123-4 Ja 23 '15

- Fires in brick and frame houses; tabulation. *Munic J* 39:217-18 Ag 12 '15

- Fixing legal responsibility for fires. O. B. McGlasson. *Am Ind* 15:31 F '15

- Gasoline fires caused by frictional electricity. *Elec R & W Elec'n* 65:1237 D 26 '14

- Hot chemicals and concrete formed slag at Edison fire. *Eng Rec* 71:184 F 6 '15

- Possibility of fire from locomotive sparks. *Ry Age* 58:267-8 F 12 '15

- Rapid destruction of fireproof buildings: results of the fire in the Edison works at West Orange, N. J. S. H. Bunnell. *Il* *Iron Age* 94:1331-3 D 17 '14

- See also* Bridges—Fires; Fire protection; Fires at sea; Forest fires; Mine fires; Tunnel fires

Fires at sea

- Prevention of fire at sea. W. O. Teague. *Eng M* 49:113-16 Ap '15

Firing

- Cleaning fires under boilers. *diag*s *Elec W* 65:734-5 Mr 20 '15

- Economical firing from a practical standpoint. R. J. Van Meter. *Ry R* 57:294-6 S 4 '15

- Economy in use of fuel results in elimination of dense smoke. F. M. Logan. *Eng Rec* 72: 531-2 N 6 '15

- Fuel economy on locomotives; committee report of the A. R. M. M. A. *Il* *Ry R* 57:183-4 Ag 7 '15

- German progress in steam boiler firing; abstract. Pradel. *diag*s *Am Soc M E J* 37: 185-7, 235-6 Mr-Apr '15

- Hand firing soft coal under power-plant boilers. H: Kreislinger. *diag*s *U S Bur Mines Tech Pa* 80:1-77 '15; Abstract. *Am Gas Light J* 102:139-40 Mr 1 '15; Excerpt (Thick-ness of fuel bed for hand-fired furnaces). *Elec W* 65:678 Mr 13 '15

- Instructing firemen at Philadelphia water pumping stations. *Eng & Contr* 44:359 N 3 '15

- Instructions for firing. *Int Marine Eng* 20: 138 Mr '15

- Problems of furnace and boiler economy. A. L. Westcott. *diag* chart *Elec W* 66:583-8 S 11 '15

- Saving fuel in heating a house. L. P. Breckenridge and S. B. Flagg. *U S Bur Mines Tech Pa* 97:1-33 '15; Same (Firing various fuels in residence heaters). *Metal Work* 84:585-6, 613-15 N 5-12 '15

See also Stokers, Mechanical

Firing grounds. See Rifle ranges**First aid in illness and injury**

- Berwind-White first-aid meeting. *Il* *Colliery* 35:254-5 D '14

- Chicago elevated first-aid system. H. E. Fisher. *Il* map *Elec Ry J* 46:430-4 S 11 '15

- Contest in rescue and resuscitation work between line crews. *Il* *Elec W* 66:1015 N 6 '15

- Don'ts for first-aid-to-the-injured corps. *Eng & Min J* 99:656-7 Ap 10 '15

- First aid at Ray Consolidated, Ray, Ariz. J. T. More. *Eng & Min J* 100:594-5 O 9 '15

- First-aid belt. *Il* *Elec W* 66:881 O 16 '15

- First-aid instructions for miners. M. W. Glasgow, W. A. Raudenbush, and C. O. Roberts. *Il* *U S Bur Mines Circ* 8:1-64 '15

- First-aid kit. *Eng & Min J* 99:490-1 Mr 13 '15

- First aid treatment. *Metal Ind n* s 13:110-11 Mr '15

- Instructions for first-aid treatment. M. W. Alexander. *Il* *Eng N* 73:284 F 11 '15; Same. *Eng & Min J* 99:366-7 F 20 '15

- N. A. S. O. first aid jar. *Il* *Ry Age* 58:64 Ja 8 '15; *Foundry* 43:73-4 F '15; *Power* 41:185-6 F 9 '15

- N. A. S. O. standard first aid jar. M. W. Alexander. *Il* *Am Ind* 15:24-7 Ja '15; Same. *Ind Eng* 14:466-7; 15:20-1 D 14-Ja '15; Excerpts. *Iron Tr R* 55:1135-6+ D 17 '14; Excerpts. *Am Gas Light J* 102:11-12 Ja 4 '15

- Safety in foundry operations. M. W. Alexander. *Il* *Metal Ind n* s 13:234-6 JI '15

- Safety in stone quarrying; common injuries and their treatment. O. Bowles. *U S Bur Mines Tech Pa* 111:38-43 '15

See also European war—Medical and sanitary affairs; Mine rescue work; War—Relief of sick and wounded

Fish waste

- Composition of certain fish fertilizers from the Pacific coast and the fertilizer value of de-greased fish scrap. J: R. Lindemuth. *Il* *J Ind & Eng Chem* 7:615-19 JI '15

Fisheries

See also Pearl fisheries

Fishes

- Effect of water pressure upon the form of fishes. *Il* *Sci Am S* 73:376-8 D 12 '14

- European markets for fish. *U S Bur For & Dom Com misc ser* 25:1-36 '15

See also Aquariums

Fitchburg, Mass.**Sewerage**

- Constructing the Fitchburg sewage-works. F. A. Marston. *Il* *diag*s *Eng N* 74:4-6 JI 1 '15

- Sewage disposal works at Fitchburg. D: A. Hartwell. *Il* fold maps *Boston Soc C E J* 2: 203-22 Je '15

Fitting (machinery)

- Adjusting tolerances for bolts, nuts, screws and taps. *Iron Age* 95:377 F 11 '15

Fitting (machinery)—Continued

- Allowances and tolerances. Mach 21:486 F '15
 Allowances for gas engine piston fits: abstracts. E. W. Weaver. Mach 21:491 F '15;
 Horseless Age 35:110-11 Ja 20 '15; Power 41:
 245 F '15
 Electric heater for shrink fits. Il Elec Ry J
 45:980-1 N 6 '15
 Heating hub bolts for shrinking large fly-
 wheels together. H. B. McDermid. Eng N
 73:687 Mr 25 '15
 Method of making a shrink fit. W. Swaren. Il
 Power 40:816 D 8 '14

Flange facing machine

- Detrick & Harvey flange facing machine. Il
 Mach 21:680-1 Ap '15

Flange rollers. See Locomotives—Lubrication**Flanges. See Pipe flanges****Flashlamps. See Electric lamps, Pocket****Flax**

- Flax and hemp supply. C: R. Dodge. Textile
 World 48:475-8 F '15
 Netherlands flax crop. C: R. Dodge. Textile
 World 49:95 Ap '15

Files

- Destruction of files and disinfection. Sci Am S
 80:112 Ag 14 '15
 Fly exhibition. Sci Am S 80:135 Ag 28 '15
 Model of musca domestica 64,000 times life
 size. J. W. Grigg. Il Sci Am 113:457 My 15
 '15
 Swat the fly eggs. Il Sci Am 112:613 Je 19 '15

Flint, Michigan

- Flint—second city of automobile industry.
 L. V. Spencer. Il Automobile 32:569-75 Ap
 1 '15

Flong machine

- Rivett flong machine. A. W. Birdsall. Il In-
 land Ptr 55:95-6 Ap '15

Flood control

- East side levee and sanitary district. T. N.
 Jacob. Il diags map Assn Eng Soc J 55:1-11
 J1 '15
 Engineering lessons from the Ohio floods. J: W.
 Alvord. Il Boston Soc C E J 1:35-108; Dis-
 cussion. 1:109-17 Mr '14
 Erie can remove flood menace by spending
 \$798,000 on Mill creek improvement. F. Gan-
 nett. Il diags map Eng Rec 72:440-2 O 9 '15
 Erie flood-protection report. diags Eng N 74:
 837 N 11 '15
 Flood prevention plans for Dayton, Ohio. W:
 S. Crandall. map Munic Eng 49:103-4 S '15
 Flood prevention undertakings in Ohio; pro-
 ceedings under new conservancy law. Eng
 & Contr 43:sup21 Je 9 '15
 Flood protection in China; report of the board
 of engineers. Eng N 72:1231 D 17 '14
 Flood-protection work on Fall creek at Indian-
 apolis, Ind. L. F. Wertz. Il diags map Eng N
 72:1120-3 D 3 '14
 Flood relief in the Hual river district of
 China. map Engineer 120:331 O 8 '15
 High levees will protect Indianapolis from
 floods. Il map Eng Rec 72:560-2 N 6 '15
 Indianapolis flood protection. Il map Eng N
 74:961-5 N 18 '15
 Indiana's flood problems. W. K. Hatt. Eng Rec
 71:169 F 6 '15
 Miami conservancy district established. map
 Eng & Contr 44:sup29 J1 '15
 Progress on the Miami valley flood-prevention
 work. map Eng N 74:92 J1 8 '15
 Proposed method of enclosing a stream in re-
 inforced concrete conduit through Mansfield,
 Ohio. C. L. Bushey. diag Eng & Contr 43:
 126-7 F 10 '15
 Report on flood prevention in China. Il Eng
 Rec 70:679-80 D 19 '14
 Securing popular support for a great project.
 S. H. Ankeney. Il Eng Rec 70:646-8 D 12 '14
 \$16,000,000 required for Los Angeles county
 flood protection. Il diags map Eng Rec 72:
 204-6, 232-8 Ag 14-21 '15
 Why rivers overflow: how floods may be pre-
 vented. A. E. Morgan. Il diags Sci Am S 78:
 392-4 D 19 '14
 See also Snow surveys

Floodgates

- Dayey's models of automatic sluices and flood
 gates. Il diags Engineer 119:410-11 Ap 23 '15

Floodlighting. See Light projection**Floods**

- April floods in Texas. B. Bunnemeyer. Eng N
 74:152 J1 22 '15
 Concrete work withstands severe tests in Erie
 flood. L: R. Ferguson. Il Concrete Cem 7:
 148-50 O '15
 Destruction wrought by Erie flood. Il Elec W
 66:489-92 Ag 28 '15
 Effect of recent floods on railways. Il Ry Age
 59:729-32 O 22 '15
 Erie rainstorm and flood. Il map Eng N 74:
 326-9 Ag 12 '15
 Flood damage to railroads in Middle west. Il
 Ry Age 59:393-4 Ag 27 '15
 Power plant and the Ohio flood. F. C. Cald-
 well. Sibley J 29:175-8 Mr '15
 Restricted stream channel responsible for Erie
 flood damage. T. E. Seelye. Il Eng Rec 72:
 188-9 Ag 14 '15
 See also Flood control

Floors

- Decorative value of tile flooring. Bldg Age 37:
 38-4 My '15
 Floor surfaces in fireproof buildings; abstracts.
 S. B. Thompson. Ind Eng 14:451-4 D '14;
 Iron Age 94:1527 D 31 '14; Am Soc M E J 37:
 7-8 Ja '15; Sci Am S 79:410-11 Je 26 '15
 Hazards of factory floors. Il Am Ind 15:sup1-4
 My '15
 Tie-rods for floor arches; a criticism of cur-
 rent practice. F. N. Kneas. diags Eng N
 73:518-19 Mr 18 '15
 Tie-rods in tile-arch floors. G. Aus. Eng N
 73:743 Ap 15 '15
 Use of wood blocks for floors. Il Iron Tr R
 56:521-2 Mr 11 '15

See also Bridges—Floors; Building; Pavements**Cost**

- Cost of a damp-proof timber floor. J. A.
 Holmes. Eng N 72:422-3 Ag 27 '14; Same.
 Ind Eng 14:372-3 S '14; Same. Bldg Age 37:
 48 Ap '15
 Cost of floors for buildings. S. E. Thompson.
 Eng Rec 70:652 D 12 '14

Testing

- Hollow-tile partitions and floor arches tested.
 diags Eng Rec 71:432 Ap 3 '15
 Using water as load in a floor test. F. R. Mc-
 Millan. Il Eng N 72:1168-9 D 10 '14

See also Floors, Concrete—Testing**Floors, Concrete**

- Chicago engineer experiments with the dusting
 of concrete floors. Eng Rec 71:155 Ja 30 '15
 Cinder concrete floors. G. B. Waite. diags Eng
 & Contr 41:500-3 My 27 '14; Same cond. Ind
 Eng 14:302-3 J1 '14; Discussion. Eng & Contr
 42:512-15 D 2 '14
 Concrete dance floors. H. Laughlin, jr. Con-
 crete Cem 7:34-5 J1 '15
 Concrete floor hardening system. Eng N 73:
 221 F 4 '15
 Concrete floor troubles. M. D. Campbell. Ry
 Age 59:965-6 N 19 '15
 Concrete floors for stables. L. C. Wason. Con-
 crete Cem 6:42-3 Ja '15
 Concrete floors in dwelling houses. H. Laugh-
 lin, jr. Concrete Cem 6:41 Ja '15
 Design and construction of Massachusetts in-
 stitute of technology buildings. S. E. Thomp-
 son. Il diags plan Concrete Cem 7:14-19 J1
 '15; Same. Eng & Contr 43:513-18 Ja 9 '15;
 Same cond. Eng Rec 71:748-50 Je 12 '15
 Dustless concrete floors. Il Eng Rec 70:607 D
 5 '14
 Economic design of concrete slabs. J. N. Jen-
 sen. Eng Rec 71:170-1 F 6 '15
 Experiments to determine the cause of dust-
 ing of concrete floors. Eng N 73:228-9 F 4
 '15
 Flat slab floor of unique design at Cleveland
 railway company car shops. Il diags Con-
 crete Cem 7:84-5 Ag '15
 Flat-slab reinforced-concrete floor at shops of
 the Cleveland railway co. Il diag Eng N 72:
 1214-15 D 17 '14
 Floor construction for driveway in cannery
 factory. Concrete Cem 7:114-15 S '15
 Linseed oil cures dusty concrete floors. Eng
 Rec 71:294 Mr 6 '15

Floors, Concrete—Continued

- New and simple method for securing dustless concrete floors; with discussion. P. M. Bruner. Concrete Cem 6:118-19 Mr '15; Same. Assn Eng Soc J 54:142-9 Ap '15
 New method for concrete flooring. Sci Am 112: 191 F 27 '15
 New system of adjustable concrete floor forms. II diags Concrete Cem 6:269-70 My '15
 New tile and concrete floor. diags Eng N 73: 1183 Je 17 '15
 Prevention of dusting of concrete floors. J. P. H. Perry. Concrete Cem 7:188 N '15
 Reinforcing details of Delco building, Dayton, Ohio. diags Eng N 74:974-5 N 18 '15
 Remedy for dusting concrete floors. Elec Ry J 46:20 JI 3 '15
 Renewing a basement floor. L. C. Wason; A. M. Smith. Concrete Cem 6:40 Ja '15
 Strength and other properties of typical cinder concrete used in floor construction in New York. H. Perrine and G. E. Strehan. Eng & Contr 43:301 Mr 31 '15
 Suggestions for light concrete floor construction in the concrete house. M. D. Morrill. diags Concrete Cem 6:35 Ja '15

Testing

- Results of tests of cinder concrete floor slabs, with conclusions and recommended methods of design. H. Perrine and G. E. Strehan. Eng & Contr 43:379-83 Ap 28 '15
 Severe tests show Chicago municipal pier to be sound in construction. II Eng Rec 72:75 JI 17 '15
 Test of load-distributing action of floor arches. F. N. Kneas. diag Eng N 73:1025 My 27 '15
 Testing cinder concrete floors. H. Perrine. Concrete Cem 6:25 Ja '15

Floors, Metal plate

- Metal plate floor shop. J. J. Turteltaub. II Iron Age 95:239 Ja 28 '15

Floriculture

See also Electrohorticulture; Plant breeding

Florida

See also Roads—Florida

Industries and resources

- Phosphate rock industry of Florida. L. W. Tucker. II Boston Soc C E J 1:509-22 D '14
 Florida East Coast railway
 To Cuba by rail. H. C. Plummer. II map Sci Am S 79:40-1 Ja 16 '15

Flotation process

- Bradford selective flotation. Eng & Min J 100: 562 O 2 '15
 Callow pneumatic process of flotation. II plan Met & Chem Eng 13:571-2 S 1 '15
 Concentrator of the Timber Butte milling co., Butte, Mont. T. Simons. Am Inst Min E Bul 102:1805-6 Je '15; Abstracts. Met & Chem Eng 13:448-9 JI '15; Eng & Min J 99:991 Je 5 '15
 Development of ore concentration. H. A. Marvin. Eng M 49:239-30 My '15
 Flotation as a conservation measure. Met & Chem Eng 13:844-5 Je '15
 Flotation at the Consolidated Arizona smelting co., Humboldt, Arizona. flow sheet Met & Chem Eng 13:897-901 D 1 '15
 Flotation in gold metallurgy. W. B. Blyth. Met & Chem Eng 13:808 My '15
 Flotation of Joplin-Galena slimes. G. Belchic and G. L. Allen. Met & Chem Eng 13:847 N 15 '15
 Flotation process. Eng & Min J 99:99-100 Ja 9 '15
 Flotation suit. Met & Chem Eng 13:409-11 JI '15
 Flotation testing machine. II Met & Chem Eng 13:930 D 1 '15
 Flotation testing machine. R. W. Smith. diags Eng & Min J 100:395-6 S 4 '15
 Flotation tests on ores from Bisbee and Cobalt. H. J. French. bibliog Sch Mines Q 36:57-67 N '14; Abstract. Met & Chem Eng 13:508 Ag '15

Individual motor drive as used in the oil flotation process. W. M. Hoen. Am Inst E E Pro 34:3011-18 D '15

- Liquid jets. C. T. Du Rell. Met & Chem Eng 13:714-16 O 15 '15
 New copper metallurgy. H. A. Megraw. II Eng M 48:877-9 F '15
 New flotation experiment. Eng & Min J 100: 900 N 27 '15
 New flotation installations. Eng & Min J 100: 668 O 23 '15
 Notes on flotation. J. M. Callow. diags flow sheets Am Inst Min E Bul 108:2321-39 D '15
 Recent progress in flotation. O. C. Ralston and F. Cameron. Eng & Min J 99:937-40 My 29 '15; Discussion. 99:1084; 100:68 Je 19, JI 10 '15
 Testing oils for flotation process; abstracts. J. Coutts. Met & Chem Eng 13:389-90 Je '15; Eng & Min J 99:1079-80 Je '15
 Two historical notes on flotation. W. F. Copeland, D. Butler and J. H. Wise. Met & Chem Eng 13:471-2 Ag '15; Same. Sci Am S 80: 182 S 13 '15
 Unsettled patent litigation. Eng & Min J 99: 253 Ja 30 '15
 Use of coal tar in flotation. W. A. Mueller. Eng & Min J 100:591-3 O 9 '15

Flour

- Contributions of the chemist to the flour industry. J. A. Wesener and G. L. Teller. J Ind & Eng Chem 7:283-5 Ap '15
 New whole wheat flour. C. Maxaner. Sci Am 112:67 Ja 16 '15
 See also Banana flour; Corn meal

Flour mills

- Apparatus for cleaning, separating and delivering grain. II diags Engineer 119:338 Ap 2 '15
 Application of electric drive in flour mills and similar industries; abstract. T. E. Simpers. Elec R & W Elec'n 66:192-3 Ja 30 '15
 Detroit flour-mill plant. T. Wilson. II plan Power 40:370-3 D 22 '14
 Electric motor drive; method of interlocking machines for simultaneous operation in the new plant of the Commercial milling company, Detroit, Mich. II diags plan Elec W 65:105-9 Ja 9 '15
 Motor sizes for flour-mill machinery. Elec W 65:418-19 F 13 '15; Same cond. Ind Eng 15: 83-4 Ag '15

Flue dust

- Case for copper hydrometallurgy; inexpensive and efficient treatment of smelter flue dust carbonate ore. G. C. Westby. II Met & Chem Eng 13:295-7 My '15
 Flue dust sintering plant at Gary, Ind. II plan Iron Age 95:1168-70 My 27 '15
 Mechanical progress of sintering. B. G. Klugh. diags Iron Tr R 57:835-8+ O 28 '15; Same. Iron Age 96:1000-4 O 28 '15; Discussion. H. A. Brassert. Iron Tr R 57:845 O 28 '15; Discussion. R. E. Brooke; H. A. Brassert. Iron Age 96:1004-5+ O 28 '15
 Metallurgical smoke. C. H. Fulton. U S Bur Mines Bul 84:27-32, 38-44 '15
 Recovery of flue-dust iron. R. Baggaley. Iron Age 95:1109 My 20 '15
 Utilizes flue dust by mixing with iron. diag Iron Tr R 57:358 Ag 19 '15
 See also Blast furnace gas; Blast furnaces; Briquets (iron); Sintering; Smelting

Flue gas

- Calculating dry flue-gas loss. C. W. Hubbard. Power 42:746-8 N 30 '15
 Cinder removal from flue gases. C. B. Grady. diag Eng M 48:905-7 Mr '15
 Flue-gas collector. C. H. Bean. diag Power 42:763 N 30 '15
 Flue-gas collector. F. W. Fischer. diag Power 42:489-90 O 5 '15
 Flue-gas sample collector. J. Morlock. II Power 42:727-8 N 23 '15
 How much CO₂ to expect with various kinds of fuel. V. J. Azbe. Power 42:712-14 N 23 '15
 Measurement of flue-gas temperature. F. T. Leilich. Elec W 65:901 Ap 10 '15
 See also Blast furnace gas

Fluids

- Automatic volumeter; abstract. E. G. Hopson. diag Am Soc M E J 37:722-3 D '15

Fluids—Continued

Flow of viscous fluids through smooth circular pipes. C. H. Lees. *Am Soc M E J* 37:242 Ap '16

See also Gas flow; Gases; Hydraulics; Hydrodynamics; Liquids; Osmosis; Solution (chemistry); Steam flow; Viscosity

Flumes

Construction of timber logging flumes. *diag Eng & Contr* 42:183-4 Ag '14

Flume without side braces. B. A. Heinly. *II diag Eng N* 74:173 JI '22 '15; Same. *Eng & Min J* 100:354-5 Ag '28 '15

Handling hydraulic fill on Plute dam. J. Jensen. *II diag Eng Rec* 73:80-1 JI '17 '15

Hydrostatic catenary flume on a concrete aqueduct. H. B. Muckleston. *II diag map Eng N* 74:58-63 JI '15

Irrigation flumes of ingot iron. *II Eng N* 72:1314-15 D '31 '14

Large, long reinforced-concrete flume of catenary section. *Eng N* 72:1267-8 D '24 '14

New rating flume for current meters. Bureau of standards. *II Eng N* 73:1127 Je '10 '15

Proposed government testing flume for hydraulic turbines not needed. H. B. Taylor. *Eng Rec* 72:321-2 S '11 '15

Recommendations for values of n for different kinds of irrigation channels. F. C. Scobey. *Eng & Contr* 44:57-60 JI '15

Timber flume for water power in British Columbia. C. A. Lee. *diag Eng & Contr* 44:398 N '17 '15

See also Hydroelectric plants; Irrigation canals

Fluorescence

Fluorescence of petroleum distillates. B. T. Brooks and R. F. Bacon. *Sci Am S* 79:61 Ja '23 '15

Fluorine

Quantitative determination of fluorine. W. H. Adolph. *diag Am Chem Soc J* 37:2500-15 N '15

Syntheses in the diphenylmethane series. L. Thorp and E. A. Wildman. *Am Chem Soc J* 37:372-7 F '15

Fluorspar

Action of fluorspar on basic open-hearth slags. W. S. Hamilton. *Met & Chem Eng* 13:8 Ja '15

Fluting

Automatic machine for fluting drills. *II Iron Age* 95:720 Ap '15; *Iron Tr R* 56:680 Ap '15; *Mach* 21:683 Ap '15

Flux

Fluxes for oxy-acetylene welding. P. F. Willis; S. W. Miller. *II Mach* 21:1007-8 Ag '15

Fluxes for oxy-acetylene welding. S. W. Miller. *II Mach* 21:786-9 Je '15

Phosphate rock as furnace flux. J. A. Barr. *II Iron Tr R* 56:183-5 Ja '15

Fly traps

Suction fly catcher. F. C. Perkins. *II Sci Am* 113:236 S '11 '15

Flying boats

Experiments with flying boat hulls. C. H. Butman. *II Sci Am S* 79:148 Mr '15

Flying-boat hulls. W. H. Fauber. *Sci Am S* 79:407 Je '28 '15

Flying machines

Bronze in history-making: an ancient figured bronze door reveals the aerial-navigation engineering of antiquity. L. Lodian. *II Metal Ind n s* 13:51-3 F '15

See also Aeroplanes

Flywheel explosions

Fly-wheel explosions, 1914. *Locomotive* 30:152-3 Ja '15

Two flywheels explode at Illinois steel co.'s plant. *Power* 41:491-2 Ap '15

Unusual fly-wheel explosion at Nelsonville, O. *II Locomotive* 30:172-5 Ap '15

Flywheels

Handy flywheel calculator. *II Power* 42:683 N '16 '15

Huge flywheel for Ford plant. *II Automobile* 32:505 Mr '18 '15

Large wooden flywheel. *II diag Power* 41:439-40 Mr '30 '15

Machining flywheels. *II diag Mach* 21:813-15 Je '15

Fodder. See Feeding and feeding stuffs

Fog signals

Fog and fog signals. E. O. Catford. *Engineer* 119:129-30 F '15

Fog signals through air and through water. R. F. Blake. *Sci Am* 111:507 D '19 '14

Providing a ship with ears; a system for locating other ships and icebergs during fog. *II R. G. Skerrett. Sci Am* 113:450 N '20 '15

Submarine signalling. *Engineer* 119:446 My '15; Same. *Sci Am S* 80:168-70 S '11 '15

Submarine signalling and proposed method of safe navigation in fog: abstract. F. L. Sawyer. *Int Marine Eng* 20:21-2 Ja '15

Folding machines

Accordion fold with the zig-zag folding machine. *II Inland Ptr* 56:120 O '15

Folk-lore, Medical. See Medical folk-lore

Follow-up system for the foundry. T. A. St. Clair, jr. *Foundry* 43:319-21 Ag '15

Food

Dried beer-yeast as an article of food. *Sci Am S* 79:311 My '15 '15

Food for polar explorers. E. Shackleton. *Sci Am S* 79:36-7 Ja '16 '15

Transforming sugar into proteins and fats. H. W. Hillyer. *Sci Am* 113:446+ N '20 '15

See also Bakers and bakeries; Bread; Butter, Substitutes for; Eggs; Flour; Food adulteration; Glucose; Mastication; Meat; Milk; Nutrition; Proteins; Syrups; Wood as food

Analysis

Concise group method for the detection of gelatinizing agents, pasty material and thickeners, used in food products. L. A. Congdon. *J Ind & Eng Chem* 7:606-7 JI '15

Examination of tomato pulp. W. D. Bigelow and F. F. Fitzgerald. *J Ind & Eng Chem* 7:602-6 JI '15

See also Soy beans

Food laws

Pure food law. L. Hogrefe. *J Ind & Eng Chem* 7:1001-2 N '15

Food preservatives

Air ozonation. M. W. Franklin. *J Ind & Eng Chem* 6:853-4 O '14; Same. *Am Soc Heat & V E* 20:350-4 '14

Food supply

Food production in the United States. *Sci Am* 112:326 Ap '3 '15

Food waste

Feeding the German nation in time of war. *Sci Am* 112:125 F '6 '15

Foot-and-mouth disease

Battle with foot-and-mouth disease. *Sci Am* 113:193 F '27 '15

Footbridges

Cost of railway footbridges. *diag Engineer* 120:197-9, 221-3, 240-2, 266-8 Ag '27-S '17 '15

Footings, Column. See Column footings

Forage plants

Chemical study of two drought-resisting forage plants. S. Lomanitz. *J Ind & Eng Chem* 7:220 Mr '15

Force and energy

Conversion of energy. (Engineers' study course) *Power* 41:103 Ja '19 '15

Energy contained in revolving wheels and locomotive side rods. W. E. Symons. *Ry Age* 59:455 S '10 '15

See also Dynamics; Electromotive force; Free energy; Mechanics; Pressure

Ford motor company

Details of the reinforced concrete building of the Ford motor co., Chicago, Ill. *II diag Eng & Contr* 42:220-2 S '2 '14

Ford averages 1927 cars a day. *Automobile* 33:249-50 Ag '19 '15

Ford methods and the Ford shops. H. L. Arnold; F. L. Faure. *II Eng M* 47:1-26, 179-203, 331-58, 507-32, 567-92, 587-86; 48:33-60, 187-212, 338-66, 524-50, 704-21, 559-76; 49:67-87, 184-201, 372-93 Ap '14-Je '15

Ford sociological work; results of second year of profit-sharing. *Iron Age* 96:443 Ag '19 '15

Ford motor company—Continued

- Foundry economies in the Ford motor plant. *Il* diag Iron Age 96:680-3 S 23 '15
 Heating and ventilating system that conserves the comfort of 15,000 workers at the Ford plant in Detroit. *Il* Sci Am S 80:280 O 30 '15
 Making of men, motor cars and profits. O. J. Abell. *Il* Iron Age 95:33-41+ Ja 7 '15
 Shipping 2000 cars a day. M. Braun. *Il* plan Automobile 33:646-9 O 7 '15

Foreign bodies (surgery)

- Determining the depth of a foreign substance in the body. Sci Am S 80:355 D 4 '15
 Electro-magnet for removing particles of iron from the flesh. *Il* Mach 21:601 Mr '15;
 Elec R & V Elec'n 66:508 Mr 13 '15; Iron Age 95:462 F 25 '15; Iron Tr R 56:525 Mr 11 '15; Sci Am S 79:168 Mr 13 '15

Foreign trade. See Export trade**Foreign trade convention, National. See National foreign trade convention, 2d****Foremen**

- Difficulties in increasing the scope of the section foreman's duties. J. P. Costello. Ry Age 58:1449-50 Je 18 '15
 Points for the road foreman. W. P. Danforth. Ry Age 57:1130-1 D 18 '14
 Training engine house foreman. R. G. Gilbride. Ry Age (Mech ed) 89:81 F '15
 Value of a foreman in a brass manufacturing plant. P. W. Blair. Metal Ind n s 12:504 D '14
See also Mine foremen

Forest administration

- Crisis in New York. H. H. Chapman. Am For 21:168-71 Mr '15
 National forest administration. D: F. Houston. Am For 20:867-9 D '14
 Situation in Michigan. H. H. Chapman. Am For 21:1066-8 N '15
See also Forest finance; Forest reserves

Forest conservation

- Destroying Mt. Mitchell. R. Pullman. *Il* Am For 21:83-93 F '15
 Forests and game preservation. O. H. Van Norden. *Il* Am For 21:111-16 F '15
 New York constitution. Am For 21:941-2 S '15
 Philippine forest wealth. D. C. Worcester. *Il* Am For 21:1-13 Ja '15
See also Forest reserves

Forest finance

- Bonding national forests. H: S. Graves. Am For 21:69-63 Ja '15
 New factor in forest finance. W. T. Christine. Am For 21:1001-2 O '15
 States get \$850,000 from national forests. Am For 21:990-1 O '15

Forest fires

- Coal company practices forestry. A. C. Neumiller. *Il* Am For 21:868-71 Ag '15
 Dark days and forest fires. C. F. Talman. map Sci Am 112:229 Mr 6 '15
 Fire protection on the national forests in 1914. H: S. Graves. Am For 21:47-50 Ja '15
 National forest fires in 1914. Am Ind 15:34-5 Ja '15
 Swedish forest fire insurance. Am For 21:531 Ap '15
 Tackling Tamalpais. F: El. Olmsted. *Il* Am For 20:887-98 D '14
 Three miles of flame: a cross-country ride and three days of work with a fire warden in New England. A. Chamberlain. Am For 21:64-7 Ja '15

Forest management

- Northern hardwood forest; its composition, growth, and management. E. H. Frothingham. *Il* U S Agric Bul 285:33-44 '15
 Southern cypress. W. R. Mattoon. *Il* map U S Agric Bul 272:50-70 '15

Forest planting

- Methods employed in the reforestation of the Croton watersheds. T. C. Culyer. Eng & Contr 44:202 S 15 '15
 Reforestation movement in China. W. F. Sherfese. *Il* Am For 21:1033-40 N '15
See also Tree planting

Forest products

- Work and some accomplishments of the forest products laboratory, Madison, Wis.; with

discussion. H. F. Weiss. *Il* diag W Soc E J 19:933-64 D '14

See also Gums and resins; Lumber; Wood

Forest products federation

- Tentative organization. E. A. Sterling. Am For 21:55-6 Ja '15

Forest reserves

- Bonding national forests. H: S. Graves. Am For 21:59-63 Ja '15
 Forestry in Wisconsin. E. M. Griffith. Am For 21:559-62 Ap '15
 Forests of the United States. L. Lundgren. *Il* map Eng M 50:1-17 O '15
 40,000 get free timber. Am For 21:991 O '15
 Hunting on the national forests. H. A. Smith. *Il* Am For 21:172-82 Mr '15
 Improved White mountain forests. W: L. Hall. *Il* Am For 21:117-26 F '15
 National forest administration. D: F. Houston. Am For 20:867-9 D '14
 New England's federal forest reserve. P. W. Ayres. *Il* maps Am For 21:803-12 JI '15
 States get \$850,000 from national forests. Am For 21:990-1 O '15
 United States mining statutes annotated; forest reservation act. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1166-77 '15
 Weeks law conference. Am For 21:1004-5 O '15
See also Forests and forestry

Forest service (United States)

- Clerk's work on a national forest. J. T. Shinn. *Il* Am For 21:653-6 My '15
 Forest service and the prospector. L. A. Palmer. Colliery 35:511+ Ap '15
 National forestry in Montana. F. R. Ingalsbe. Assn Eng Soc J 54:175-98 My '15

Foresters

- Foresters in the German army. T. R. Helms. *Il* Am For 21:527-31 Ap '15
 Foresters in the great war. S: T. Dana. *Il* Am For 20:858-67 D '14

Forestry. See Forests and forestry**Forestry association, American. See American forestry association****Forestry clubs**

- Township forestry club. G: B. Cobb. Am For 21:109 F '15

Forestry laws and legislation

- Federal and state forestry legislation. Am For 21:145-7 F '15
 Texas forestry law. Am For 21:615-16 My '15
 United States mining statutes annotated; timber cutting for mining purposes. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1334-53 '15
 Weeks law conference. Am For 21:1004-5 O '15
 Wisconsin's forestry tangle. Am For 21:206-7 Mr '15
See also Forest reserves

Forestry schools and education

- Oregon forest students. *Il* Am For 21:740-2 Je '15
 Yale forestry class in the woods. J. L. Goodwin. *Il* Am For 21:872-5 Ag '15
See also Colorado school of forestry

Forests, Municipal

- First town forest. Am For 21:1042 N '15
 Harrisburg's municipal forest. H. J. Mueller. *Il* Am For 21:732-5 Je '15

Forests and forestry

- See also* Forest conservation; Forest fires; Forest reserves; Foresters; Forests, Municipal; Landscape gardening; Pine; Tree planting; Trees; Wood; Woodlots

Belgium

- Forests of Belgium. C: H. Whitaker. *Il* Am For 21:22-32 Ja '15

Canada

- Canadian lumber competition. H. D. Langille. *Il* Am For 21:130-9 F '15

China

- Reforestation movement in China. W. F. Sherfese. *Il* Am For 21:1033-40 N '15

Forests and forestry—Continued

France

Great war's destruction of French forests. J. P. Alaux. *Il Am For* 21:155-68 Mr '15

Germany

American trees in German forests. J. S. Illick. *Il Am For* 21:922-7 S '15
Great war and German forests. P. Bigelow. *Il Am For* 21:807-12 My '15

India

British India. U S Sp Cons Rep 72:399-408 '15

Japan

Forests of Japan. N. B. Eckbo. *Il Am For* 21:693-711 Je '15

Michigan

Situation in Michigan. H. H. Chapman. *Am For* 21:1086-8 N '15

Montana

National forestry in Montana. F. R. Ingalsbe. *Assn Eng Soc J* 54:175-98 My '15

North America

Northern hardwood forest; its composition, growth, and management. E. H. Frothingham. *Il map U S Agric Bul* 285:1-79 '15

Philippine Islands

Philippine forest wealth. D. C. Worcester. *Il Am For* 21:1-18 Ja '15
Philippine forestry exhibit. A. T. Fischer. *Il Am For* 21:997-9 O '15

Russia

Forests in the Russian war zone. E. Washburn. *Il Am For* 21:765-67 Jl '15

Switzerland

How Switzerland cultivates her forests. M. Wildmer. *Il Am For* 21:347-60 Ag '15

United States

Forestry issue in the lake states. H. H. Chapman. *Am For* 21:660-9 My '15
Forests of the United States. L. Lundgren. *Il map Eng M* 50:1-17 O '15

See also Forest reserves; Forestry service (United States)

Wisconsin

Forestry in Wisconsin. E. M. Griffith. *Am For* 21:559-62 Ap '15

Forge furnaces. See Furnaces, Metallurgical

Forge shops

Description of nut, bolt and rivet shop of Upson nut co., Cleveland, with details of arrangement and equipment. R. V. Sawhill. *Il plan Iron Tr* 11:56:1345-54+7 Je '15
Modern automobile forge shop; Packard motor car co., Detroit. F. A. Churchill, Jr. *Il plans Iron Tr* R 57:829-32+ O 28 '15
New forge shop of Upson nut company, Cleveland. *Il plans Iron Age* 95:1336-43 Jo '15
Utilizing waste heat in a drop forge shop; hot gases from furnaces used to generate steam. *Il diag plan Iron Age* 95:45-7 Ja 7 '15

See also Forging; Forging machinery

Forgery

Science and the forger; instruments and illustrations in questioned document cases. A. S. Osborn. *Il Sci Am* 112:434-5 My 8 '15

Forging

Don'ts for drop-forge die hardeners and users. W. L. Goodrich. *Mach* 21:453 F '15

Drop forging. A. M. Tilton. *Iron Age* 95:1177-8 My 27 '15

Efficiency of forging hammers. C. H. Wackernagel. *Mach* 21:785 Je '15

Equipment for forging shrapnel cases. C. A. Tupper. *Iron Age* 95:512-14 S 2 '15

Forging shrapnel shells. D. T. Hamilton. *Il diag Mach* 21:614-18 Ap '15; Same. *Sci Am* S 79:404-6 Je 26 '15

Forging the shrapnel head. *Il diag Mach* 21:637-8 Ap '15

Master blacksmiths' convention; discussion of drop forging. *Il Ry Age (Mech ed)* 89:476 S '15

Rolling tapered forgings. F. H. Blakeslee. *Il Mach* 21:909-10 Jl '15

Why do you wet coal on the forge? L. K. Hirschberg. *Colliery* 35:414 Mr '15

See also Dies; Forge shops; Welding

Forging machinery

Forging machine dies. J. Lee. *diag Ry Age (Mech ed)* 89:37 Ja '15

Forging machine dies. J. W. McDonald. *Il diag Ry Age (Mech ed)* 88:639-40 D '14

New forging slotter. *Il Iron Tr R* 55:1088 D 10 '14

Rolling tapered forgings. F. H. Blakeslee. *Il Mach* 21:909-10 Jl '15

Uses of the quick forging press; abstracts. A. J. Capron. *Il diag Iron Tr R* 57:683-5 O 7 '15; *Iron Age* 96:1224-5 N 25 '15

Form factor. See Electric waves

Formamid

Conductivity and viscosity of solutions of electrolytes in formamid. P. B. Davis, W. S. Putnam and H. C. Jones. *Il diag J Fr Inst* 180:567-601 N '15

Formates

Studies in conductivity; the conductivity of some formates and of hydrogen chloride in (anhydrous) formic acid; cases of apparent agreement of strong electrolytes with the mass law. H. I. Schlesinger and A. W. Martin. *diag Am Chem Soc J* 36:1589-1620 Ag '14

Formic acid

Determination of formic acid in ketchup. C. A. Peters and L. P. Howard. *J Ind & Eng Chem* 7:35-7 Ja '15

Free energy of formation of formic acid. G. E. K. Branch. *diag Am Chem Soc J* 37:2816-26 O '15

Forsyth dental infirmary, Boston

Two dental buildings. H. D. Eberlein. *Il plans Arch Rec* 37:532-4 Je '15

Fort Worth, Texas

Bridges

Design and construction of the Main street reinforced concrete viaduct. S. W. Bowen. *diag Eng & Contr* 43:211-17 Mr 10 '15

Methods and costs in constructing the 450-ft. East Fourth street viaduct. E. W. Robinson. *Il Concrete Cem* 5:231-8 D '14

Fortification

German on permanent fortifications. *Sci Am* 113:374 O 30 '15

Improvised defenses. *Il Sci Am S* 80:100 Ag 14 '15

Mining and countermining of fortifications. *Il Sci Am* 111:464-5 D 5 '14

See also Coast defense; Intrenchments

Foundation soils

Boston foundations. J. R. Worcester. 26 fold maps Boston Soc C E J 1:1-29 Ja '14; Discussion. 1:179-248, 395-417 Ap 8 '14

City founded on sawdust; how part of Muscatine, Iowa, came to be built on such a foundation. *diag map Eng Rec* 71:496-7 Ap 17 '15

Data requested on the bearing value of soils. *Eng & Contr* 43:475 My 26 '15

Distribution of vertical soil pressures; tests at Engineering experiment station of Pennsylvania state college. J. A. Moyer. *Il Eng Rec* 71:330-2 Mr 13 '15

Lateral pressure and resistance of clay, and the supporting power of clay foundations. A. L. Bell. *Engineer* 110:124 Ja 29 '15

Soil-bearing test with confined plunger. *Il diag Eng N* 74:651-2 S 30 '15

Topography of the bed-rock under Chicago. R. Peattie. maps W Soc E J 19:590-4 Je '14; Same cond. *Eng & Contr* 42:605-7 D 30 '14; Discussion. W Soc E J 19:594-611 Je '14

Foundations

Anchoring foundation bolts in concrete. T. Croft. *diag Power* 41:341 Je 22 '15

Building a lighthouse on shifting sand. H. J. Shepstone. *Il Sci Am* 112:287-8 Mr 27 '15

Concrete foundations for houses. G. L. McMurphy. *Il diag Bldg Age* 37:65-6 D '15

Concrete pile and cylinder foundations at Charleston. *Il diag Eng N* 74:926-9 N 11 '15

Foundations—Continued

- Construction of tower foundations; abstract. F. C. Connery. *diags Elec W* 66:136 JI 17 '15
- Court rules on validity of foundation patent. *Eng Rec* 71:154-5 Ja 30 '15
- Foundation work and the skyscraper. *Sci Am* 112:560 Je 5 '15
- Foundations for high towers at Darien, C. Z. I. W. Dye. *II diag Eng N* 73:1178-9 Je 17 '15
- Foundations for transmission line towers and tower erection. J. A. Walls; J. B. Leeper; W. E. Mitchell; P. M. Downing; F. C. Connery. *diags pls Am Inst E E Pro* 34:1167-97, 1869-77 Je-JI '15; *Abstracts. Elec W* 66:3-10 JI 3 '15; *Eng N* 74:159-61 JI 22 '15; *Discussion. Am Inst E E Pro* 34:3117-26 D '15
- Grouting or cushioning stand pipe bases; abstracts. C. W. Sherman. *Munic J* 39:312 N 25 '15; *Eng & Contr* 44:410-11 N 24 '15
- Methods and plant used in constructing the foundations for the Field museum of natural history, Chicago, Ill. *II plans Eng & Contr* 44:402-5 N 24 '15
- Novel method of excavating for the foundation of a bank building in Stockholm, Sweden. K. P. Billner. *Eng & Contr* 44:113 Ag 11 '15
- Pier and pile foundations on earth and rock. *II plan Eng N* 74:632-3 S 30 '15
- Putting down deep foundation piers in Long Island City. *diags Eng N* 73:231-3 F 4 '15
- Repairing building supports and foundations with concrete. *II Concrete Cem* 6:45-6 Ja '15
- Retaining walls on soft foundations. W. S. Lacher. *II diags W Soc E J* 20:232-47 Mr '15; *Same cond. Eng & Contr* 43:576-9 Je 30 '15; *Abstract. Ry Age* 53:411-13 Mr 5 '15; *Discussion. W Soc E J* 20:247-65 Mr '15
- Settlement of two grain elevators. *Eng N* 73:872-3 My 6 '15
- Sinking foundations through steel and concrete. *II Eng N* 74:983-9 N 18 '15
- Straightening a tall leaning factory chimney by a new method. T. S. Clark. *diags Eng N* 73:266-7 F 11 '15; *Same. Power* 41:408 Mr 23 '15; *Same. Eng & Min J* 99:323 My 8 '15; *Same. Ind Eng* 15:66-7 Ag '15
- Structural steel supports for large steam turbines. *diags plan Eng N* 73:66-9 Ja 14 '15
- Tower foundations for the Cristobal-Balboa transmission line. I. W. Dye. *II diags Eng Soc W Pa* 30:973-90 Ja '15; *Same. Ry R* 56:728-31 My 29 '15; *Same cond. Eng & Contr* 44:317-20 O 20 '15
- See also* Bridges—Foundations and piers; Buildings; Caissons; Cellars; Cofferdams; Column footings; Concrete piling; Cribbs; Concrete; Dams—Foundations; Foundation soils; Pavements—Foundations; Piers; Piles and pile driving; Shoring and underpinning; Walls
- Founders**
- Proper clothing prevents injury; what foundry operatives should wear. *II Foundry* 43:375-7-8 '15; *Same cond. Eng M* 49:758 Ag '15
- Founders' association, National.** *See* National founders' association
- Foundries**
- American bronze company's new plant. G. W. Grupp. *II plan Metal Ind n s* 13:447-9 N '15
- Buffalo electric steel foundry. H. C. Estep. *II plan Iron Tr R* 56:215-20 Ja 28 '15; *Same. Foundry* 43:1-6+ Ja '15
- Converter foundry of large capacity. E. F. Cone. *II plan Iron Age* 96:669-74 S 28 '15
- Detroit steel castings company's plant. *II plan Iron Age* 96:701-6 S 28 '15
- Floating foundry of the U. S. S. Vestal. F. M. Perkins. *II plan Foundry* 43:211-15 Je '15
- Ford methods and the Ford shops. H. L. Arnold. *II plans Eng M* 48:524-50 Ja '15
- Ford raw materials project. *Iron Age* 96:395 Ag 12 '15
- Foundry construction for light castings. *II plan Iron Age* 96:917-21 O 21 '15
- Foundry in Pittsburgh district: new plant of Cyclops foundry co. *II Iron Tr R* 56:174-5 Ja 21 '15
- Gray-iron foundry of instructive design; advantages of a clean and orderly operation as maintained by the Textile machine company, Reading, Pa. *II Iron Age* 95:987-91 My 6 '15
- How boiler and greenhouse parts are molded. E. C. Kreutzberg. *II plan Foundry* 43:253 JI '15
- How titanium-aluminum bronze is produced. C. Vickers. *II Foundry* 43:277-8 JI '15
- Implement foundry of Deere & co. *II Iron Age* 95:88-92 Ja 7 '15
- Interesting steel casting plant; Dutcher works of the Prime steel co., Milwaukee. *II Iron Tr R* 56:127-8 F 25 '15
- Iron foundry for Werner & Pfleiderer company's manufacturing plant, Saginaw, Mich. *II diag plan Iron Age* 96:688-91 S 23 '15
- Metamorphosis of the foundry. R. A. Bull. *Iron Tr R* 57:637-8+ S 30 '15
- Modern sheet metal machinery plant. *II plans Metal Work* 83:127-9 Ja 15 '15
- New foundry for making machinery castings; equipment of the Putnam machine co., Fitchburg, Mass. *II Foundry* 43:281-3 JI '15
- New malleable foundry; plant of Hammond malleable iron co. *II plan Iron Tr R* 56:859-60 Ap 29 '15; *Same. Foundry* 43:204-5+ My '15
- Problems involved in industrial pioneering. L. L. Anthes. *Foundry* 43:82-3 F '15
- Studebaker corporation gray-iron foundry at South Bend, Ind. *II Iron Age* 95:840-1 Ap 15 '15
- Two-story foundry for continuous operations. G. K. Hooper. *Foundry* 43:185-6 My '15
- See also* Brass foundries; Electricity in foundries; Founders; Foundry accounting; Foundry management; Foundry practice, and other headings beginning Foundry
- Accidents**
- When the ladle chain broke. L. Forrester. *Foundry* 43:261-2 JI '15
- Equipment and supplies**
- Agricultural castings made at minimum cost; modern foundry at Moline, Ill. J. F. Ervin. *II plans Foundry* 43:86-92 Mr '15
- Annual exhibit of foundry equipment. *II Iron Age* 95:824-6 O 7 '15
- Brass foundry equipment and management. W. H. Parry. *Metal Ind n s* 13:61, 186, 452 F, My, N '15
- Core-oven mechanical draft installation. *II diag Iron Age* 96:1163-4 N 18 '15
- Cranes for the machine shop and foundry. H. M. Lane. *diags Iron Age* 96:240-3 JI 29 '15
- Efficient methods of the Yale & Towne mfg. co. and details of its specially-equipped shop. H. C. Estep. *II plans Foundry* 43:129-37 Ap '15; *Same (Castings for locks and hardware). Iron Tr R* 56:809-16+ Ap 22 '15
- Exhibitors and what they'll exhibit; Atlantic City, Sept. 25-Oct. 1, 1915. *Foundry* 43:341-4 S '15
- Foundry and machine exhibition, Atlantic City, Sept. 25-Oct. 1. *II Foundry* 43:398-404 O '15
- Foundry core print rack. W. H. Parry, jr. *Foundry* 43:454 N '15
- Foundry exhibits at Atlantic City. *II Iron Tr R* 57:839-44 S 30 '15
- Foundry tumbling barrel. *II Iron Age* 94:1525 D 31 '14
- Handy flask clamp. J. F. Buchanan. *II diag Foundry* 43:242-3 Je '15
- How boiler and greenhouse parts are molded. E. C. Kreutzberg. *II plan Foundry* 43:249-57 JI '15
- Improved drop release for foundry scrap breaker. J. V. Pierce. *diag Mach* 21:496 F '15
- Labor saving devices in Texas foundry. *II Iron Age* 95:341-3 F 11 '15
- Miscellaneous stands for use in the foundry. A. Hill. *diags Foundry* 43:301-3 Ag '15
- Modern foundry pig-iron mixer; operating and chemical results with blast-furnace and coke-oven gases; abstract. O. Simmersbach. *Iron Age* 96:812-13 O 7 '15
- Modern iron founding. R. Onions. *II diags Engineer* 119:411-13 Ap 23 '15
- Selecting grinding wheels for foundry use. C. F. Dietz. *Foundry* 43:115-20 Mr '15; *Same. Iron Tr R* 57:314-18+ Ag 12 '15
- Skim gate that skims. J. H. Anderson. *diags Foundry* 43:243 Je '15

Foundries—Equipment and supplies—Continued
Snap flasks. Metal Ind n s 18:64-5 F '15

See also Casting machines; Crucibles; Electricity in foundries; Fire brick; Foundries—Safety devices; Foundry machinery; Molding machines; Sand, Foundry

Inspection

How the product of the foundry is inspected. E. Godfrey. Foundry 43:222-4 Je '15; Same cond. Iron Age 95:898-9 Ap 22 '15

Laws and regulations

See Foundry laws

Lighting

Artificial light for foundries. Eng M 49:589 JI '15

Good light—a safety factor in casting plants. Foundry 43:316-18 Je '15

Safety devices and measures

Chipping boss as an optimist. C. Yost. diag Foundry 43:463-4 N '15

Fifty safety rules for the operation of cranes. Foundry 43:16-17 Ja '15

Good natural light—a safety factor. Eng M 49:435-6 Je '15

How to increase safety of cupola operations. II diag Foundry 43:445-6 N '15

National founders' association 19th annual convention. Iron Age 96:1243 N 25 '15

National safety council foundry safety meeting; abstracts of papers. Iron Age 96:982-3 O 28 '15

Ohio foundry conference. Iron Age 95:1014-15 My 6 '15

Proper clothing prevents injury. II Foundry 43:375-7+ S '15; Same cond. Eng M 49:758 Ag '15

Safe wheelbarrows and trucks. diag Ind Eng 15:43-4 F '15; Same. Foundry 43:365-6 JI '15; Same. Iron Tr R 57:396+ Ag 26 '15; Same cond. Am Ind 15:supl-4 JI '15

Safety in foundry operations. M. W. Alexander. II Metal Ind n s 13:198-9, 242-3, 284-6 My-JI '15

Safety in tumbling mill operations. II diag Foundry 43:144-6 Ap '15

Ventilation

Efficient methods of the Yale & Towne mfg. co. and details of its specially-equipped shop. H. C. Estep. II Foundry 43:133-5 Ap '15; Same (Castings for locks and hardware). Iron Tr R 56:810-14 Ap 22 '15

Foundry accounting

American foundrymen's association committee recommends universal cost keeping system. Foundry 43:451-4 N '15

Analysis of the foundry cost. J. K. Mason. Foundry 43:8-12 Ja '15

Cost keeping in the brass foundry. C. O. Skeeper. Metal Ind n s 13:497-9 D '14

Finding costs in the steel foundry. G. Muntz. Iron Tr R 57:482-4 S 9 '15

Revision of the A. F. A. standard cost system. H. Emerson. Foundry 43:7-8 Ja '15

Uniform basis for figuring foundry costs. Iron Age 96:1118-21 N 11 '15

Foundry costs

Cupola operation for continuous pouring. J. F. Ervin. II Iron Age 96:183-5 JI 22 '15

Graphic method of estimating core costs. E. S. Dean. Iron Age 95:1013 My 6 '15

See also Foundry accounting

Foundry education. *See* Foundry, practice—Study and teaching

Foundry laws

New York state rules governing casting plants. Foundry 43:295-7 Ag '15; Same. Iron Tr R 57:312-13+ Ag 12 '15

Pennsylvania foundry code. Iron Age 96:955-6 O 21 '15

Foundry machinery

Crane sand cutting machine. II Iron Tr R 56:88-90 Ja 7 '15; Same. Foundry 43:77-9 F '15

Duplex shaker. II Metal Ind n s 13:434 O '15

How to make cores in multiple. II Iron Tr R 56:180-2 Ja 21 '15

Industrial control in the foundry. R. H. McLain. II Am Inst E E Pro 34:537-97 Ap '15; Same. Foundry 43:201-3 My '15; Abstract, with discussion. Elec R & W Elec'n 66:777-8 Ap 24 '15; Discussion. Am Inst E E Pro 34:2884-96 D '15

Machines for breaking pig iron. II Iron Tr R 56:1089 My 27 '15

Manufacture of cores. W. J. Reardon. II Metal Ind n s 13:236-9 Je '15

Motor-driven gyratory riddle. II Foundry 43:379 S '15

Pneumatic drop machine for the foundry. G. S. Evans. II Iron Age 96:674-5 S 23 '15

Pouring systems for gray-iron foundries. II Iron Age 96:1123-5 N 11 '15

See also Casting machines; Charging machines; Molding machines

Exhibitions

Annual exhibit of foundry equipment. II Iron Age 96:824-6 O 7 '15

Annual exhibition at foundrymen's convention, Atlantic City, Sept. 25 to Oct. 1. Iron Tr R 57:580-3 S 23 '15

Exhibitors and the products displayed, Atlantic City, Sept. 25-Oct. 1. Iron Age 96:694-700 S 23 '15

Exhibitors and what they'll exhibit; Atlantic City, Sept. 25-Oct. 1, 1915. Foundry 43:341-4 S '15

Foundry and machine exhibition, Atlantic City, Sept. 25-Oct. 1. II Foundry 43:398-404 O 15

Foundry and machine exhibition, Atlantic City, Sept. 25-Oct. 1. Metal Ind n s 13:406-9 O '15

Foundry exhibits at Atlantic City. II Iron Tr R 57:639-44 S 30 '15

Foundry management

Applying scientific management. H. K. Hathaway. Iron Tr R 57:739-42+, 787-93 O 14-21 '15; Same. Foundry 43:440-4, 502-7+ N-D '15

Automobile foundry core-room economies. II Iron Age 95:131-3 Ja 14 '15

Commercial problems of the foundry. R. Moldenke. Iron Age 96:707-9 S 23 '15

Congestion in foundries. H. M. Lane. Iron Age 95:999 My 6 '15

Departmental co-operation in foundry work; how the casting plant can aid the sales department. W. H. Burr. Foundry 43:121-3 Mr '15; Same cond. Iron Age 95:798-9 Ap 8 '15

Efficiency in the brass foundry. W. R. Dean. Metal Ind n s 13:327-9 Ag '15

Eliminating waste motion in molding. R. E. Kennedy and J. C. Pendleton. II Iron Age 94:663-4 S 17 '14; Same. Ind Eng 14:423-6 N '14

First principles of shop planning. F. M. Perkins. II Foundry 43:366-73 S '15

Ford methods and the Ford shops. H. L. Arnold. II plans Eng M 48:524-50 Ja '15

Foundry use of non-ferrous scrap metals. F. M. Perkins. II Metal Ind n s 13:140-2, 194-7 Ap-May '15

How to increase the output of your foundry. G. K. Hooper. Foundry 43:93-5 Mr '15; Same cond. Iron Age 95:352-3 F 11 '15

Important problem of obtaining new work. H. J. McMurtrie. Foundry 43:371-2 JI '15

Leaves from the diary of a malleable man. L. E. Gilmore. Iron Age 95:42-4 Ja 7 '15

Metamorphosis of the foundry. R. A. Bull. Foundry 43:415-17 O '15

National founders' association 19th annual convention. Iron Age 96:1242-7 N 25 '15

Operating a foundry on a scientific basis; a large Detroit shop specializing in aluminum castings. F. A. Parkhurst. II Foundry 42:443-7, 479-86; 43:21-6, 53-8, 107-10 N '13-Mr '15

Practical follow-up system for the foundry. T. A. St. Clair, Jr. Foundry 43:319-21 Ag '15

Principles of continuous melting applied. J. F. Ervin. Iron Age 96:686-7 S 23 '15

Promise-keeper for the foundry. R. E. Wood. Foundry 43:237-8 Je '15

Reclaiming brass sweepings. A. W. Lemme. Iron Age 95:946 Ag 29 '15; Same. Foundry 43:191-3 My '15; Same. Metal Ind n s 13:187-8 My '15

Selling price of castings. A. O. Backert. Iron Tr R 56:228-30+ Ja 28 '15

Shop management and what it means. E. W. Wallbank. Foundry 43:299-300 Ag '15

Foundry management—Continued

- Success and failure in the foundry. A. Kiefer. plan Foundry 43:297-8 Ag '15
- Training in foundry work that is worth while; the course at the University of Illinois. R. E. Kennedy and J. H. Hogue. *Il Foundry* 43:405-11 O '15; Same. *Iron Tr R* 57:617-23 S 30 '15
- Where are the profits in the foundry business? A. G. Dean. Foundry 43:74-5 F '15
- Where's that pattern? and how to locate it. H. A. Russell. *Il Foundry* 43:263-5 J1 '15
- See also* Foundries—Safety devices and measures; Foundry practice; Foundry records; Foundry sanitation
- Foundry practice**
- American foundrymen's association annual convention, Atlantic City. Foundry 43:385-94 O '15
- American foundrymen's association annual convention, Atlantic City, N. J. *Iron Tr R* 57:694-701 O 7 '15
- American foundrymen's association convention, Atlantic City, Sept. 27-Oct. 1; abstract of papers and discussion. *Iron Age* 96:814-19, 822-4 O 7 '15
- Applications of cores in modern molding. R. A. Bull. *Iron Age* 96:784-6 S 30 '15; Same. *Iron Tr R* 57:785-6+ O 21 '15; Same. Foundry 43:470-1+ N '15
- Arc welding and its application in the metal-working industry. J. F. Lincoln. *Elec R & W Elec'n* 88:1161-2 Je 19 '15; Same cond. Foundry 43:139-40 Ap '15; Excerpts. *Iron Age* 96:949 Ap 29 '15
- Babbitt bearing mold. S. Sucram. *diag Mach* 21:532 Mr '15
- Buffalo electric steel foundry. H. C. Estep. *Il plan Iron Tr R* 56:315-20 Ja 28 '15; Same. Foundry 43:1-6+ Ja '15
- Care in melting zinc. R. Job and F. F. White. *Il Iron Age* 96:199 J1 22 '15
- Causes of coke troubles in the foundry. *Iron Age* 94:1348-9 D 10 '14
- Common sense-steel foundryman's great asset. S. Muntz and S. Roubieu. *Il Foundry* 43:175-8 My '15; Same. *Iron Tr R* 57:949-52 N 11 '15
- Converter foundry of large capacity. E. F. Cone. *Il plan Iron Age* 96:669-74 S 23 '15
- Drop-pouring process of casting: the solution of a difficult brass foundry problem. E. A. Barnes. *Il Metal Ind n s* 12:511-12 D '14
- Electric furnace in the foundry. J. H. Gray. *diag Iron Age* 96:798-800, 878-81 O 7-14 '15
- Electric furnace in the foundry. R. C. Gosrow. *Met & Chem Eng* 13:882-3 D 1 '15
- Ford methods and the Ford shops. H. L. Arnold. *Il plans Eng M* 48:524-50 Ja '15
- Foundry economies in the Ford motor plant. *Il diag Iron Age* 96:680-3 S 23 '15
- Foundry transfer pits. H. M. Lane. *Iron Age* 95:820-1 Ap 8 '15
- Functions of sand binders. H. M. Lane. *Metal Ind n s* 13:421-3 O '15
- Getting the most from molding machines. P. R. Ramp. *diag Iron Age* 96:1-4 J1 1 '15
- Heat losses from an electric furnace. W. H. Wills and A. H. Schuyler. *Iron Age* 96:1052-3 N 4 '15
- How boiler and greenhouse parts are molded. E. C. Kreutzberg. *Il plan Foundry* 43:249-57 J1 '15
- How producer gas is used for drying molds and cores and for heating ladles in English foundries. *Il Foundry* 43:229-30 Je '15
- How radiator cores are made efficiently. E. C. Kreutzberg. *Il Foundry* 43:471-3 D '14
- How sewing machine parts are molded and cast. H. C. Estep. *Il Foundry* 43:345-51 S '15
- How Stout institute students cast a gasoline engine. F. F. Hillix. *Il Foundry* 43:99-102 Mr '15
- How to eliminate defects in steel castings. J. H. Hall. Foundry 43:146-51 Ap '15; Same. *Iron Tr R* 57:225-9+ J1 29 '15
- How to get high core efficiency. H. M. Lane. *Iron Age* 96:684-6 S 23 '15
- How to operate the sand-blast efficiently. J. M. Betton. Foundry 43:182-3 My '15
- Huge flywheel for Ford plant. *Il Automobile* 22:505 Mr 18 '15
- Liquid fuel for foundry cupolas. E. F. Cone. *diag Iron Age* 96:1058-9 My 13 '15

- Machine-made cores. W. D. Fraser. *Il Foundry* 43:160 Ap '15
- Making car wheels at the Lenoir car works. G. S. Evans. Foundry 43:351-3, 428-31, 435-9 S-N '15
- Making cores for an intricate casting. J. L. Sender. *Il Foundry* 43:143-4 Ap '15
- Making sectional molds for die-cast name-plates. E. K. Hammond. *Il Mach* 21:554-7 Mr '15
- Making small gear wheels with a molding machine. R. A. Miles. *Il diag Foundry* 43:161-3 Ap '15
- Molding and casting a bronze monument. W. N. Nelly. *Il Metal Ind n s* 13:93-4 Mr '15
- Molding machines and pattern mounting. J. F. Eryin. *Iron Age* 95:721-4 Ap 1 '15
- Molding the new Cadillac eight-cylinder motor. H. C. Estep. *Il Foundry* 43:171-4 My '15
- Oil firing in foundry practice. W. N. Best. *Iron Age* 95:870-1 Ap 15 '15
- Old piston used for a core box. A. F. Albert. *diag Mach* 21:748 My '15
- Opportunities for the foundry engineer; abstracts. W. F. Prince. Foundry 43:63-4 F '15; *Iron Age* 95:146-8 Ja 14 '15
- Packing ingot molds. S. K. Eastwood. *diag Iron Age* 95:351 F 11 '15
- Plaster matches for use on machine or floor. A. Hill. Foundry 43:238-9 Je '15
- Precision castings. E. Buckingham. *Il diag Metal Ind n s* 13:11-13 Ja '15
- Present-day aspects of English foundry practice. J. Horner. *Il Metal Ind n s* 13:97-8, 146-8 Mr-Apr '15
- Reducing the cost of foundry patterns. D. Gordon. *Il diag Iron Age* 95:1277-9 Je 10 '15
- Sand mixing plant for a large foundry. *Il Iron Age* 94:1278-5 D 3 '14
- Scientific operation of a cupola. D. Townsend. *Il diag Iron Tr R* 57:183-5 J1 15 '15; Same. Foundry 43:322-4 Ag '15; Same. *Iron Age* 95:590-1 Mr 11 '15
- Steel casting plant at Oakland, Cal. *Il Iron Age* 95:1387-8 Je 24 '15
- What's the matter with the foundries? J. P. Brophy. *Mach* 22:141 O '15
- Would the castings have come straight? W. F. Barrows. Foundry 43:19 Ja '15
- See also* Aluminum founding; Brass founding; Cast iron; Copper founding; Cupola furnaces; Die casting; Electric furnaces; Electricity in foundries; Foundries; Foundry machinery; Iron founding; Steel castings

Study and teaching

- Teaching foundry practice by mail. *Il Foundry* 43:65-8 F '15
- Training embryo foundry leaders in school; outline of the course of Wentworth institute. E. A. Johnson. *Il Foundry* 43:306-10 Ag '15
- Training in foundry work that is worth while; the course at the University of Illinois. R. E. Kennedy and J. H. Hogue. *Il Foundry* 43:405-11 O '15; Same. *Iron Tr R* 57:617-23 S 30 '15

Tables, calculations, etc.

- Formulas for finding the weights of castings. W. L. Tryon. Foundry 42:8a, 50a, 226a, 336a, 406a, 456a, 484a Ja-F, Je, S-D '14
- Weight of rods or cylinders per running inch. W. L. Tryon. Foundry 43:16a, 58a Ja-F '15
- Foundry records**
- Where's that pattern? and how to locate it. H. A. Russell. *Il Foundry* 43:263-5 J1 '15
- Foundry sand. *See Sand, Foundry*
- Foundry sanitation**
- New York state rules governing casting plants. Foundry 43:295-7 Ag '15; Same. *Iron Tr R* 57:312-13+ Ag 12 '15
- See also* Foundries—Ventilation
- Foundry standards**
- Standard specifications for the foundryman. Foundry 43:258-61 J1 '15
- Foundry symbols**
- Operating a foundry on a scientific basis. F. A. Parkhurst. *Il Foundry* 43:479-86 D '14
- Pattern storage systems for factories. J. G. Shirley. *Iron Age* 96:304-6 Ag 5 '15

- Foundrymen's association, American.** See American foundrymen's association
- Fountains**
 Nikola Tesla's fountain. *Il Sci Am* 112:162 F 13 '15
See also Drinking fountains; Springs
- Fraction calculator.** See Calculating machines
- Fractions, Continued**
 Use of continued fractions in mechanical problems. W. W. Johnson. *Il diag Mach* 21:302-4 Je '15
- Fractures**
 Device for treatment of dislocated and fractured lower limbs. *Il Sci Am* 113:364+ O 23 '15
 Quick mending of broken bones. *Sci Am S* 78:411 D 26 '14
- Framing (building)**
 Design and construction of the 435-ft. steel framed tower of jewels at the Panama-Pacific international exposition. F. S. M. Harris. *Il diags Eng & Contr* 43:47-54 Ja 20 '15; Same cond. *Eng N* 73:866-72 My 6 '15
 Exterior wooden framing of the tower of jewels, Panama-Pacific international exposition. plans *Eng & Contr* 43:377-9 Ap 28 '15
- France**
See also Printing—France
- Commerce**
 Commercial organizations in France. A. J. Wolfe. *U S Bur For & Dom Com* 98:1-75 '15
 Commercial policy
 Government institutions for promotion of commerce. A. J. Wolfe. *U S Bur For & Dom Com* 98:67-75 '15
 Industries and resources
 French automobile industry in good condition. *Il Automobile* 33:101-2 Ja 21 '15
 French steel plants in war time. F. Miltoun. *Iron Age* 95:940-2 Ap 29 '15
 Iron and steel industry of northern France. L. De Launay. *Eng M* 49:735 Ag '15
 Manufacture of chicory. J. Boyer. *Il Sci Am S* 80:40-2 Jl 17 '15
- Law**
 Commercial laws of England, Scotland, Germany and France. A. J. Wolfe and E. M. Borchard. *U S Bur For & Dom Com* 97:69-106 '15
 Social conditions
 Housing reform in France. C. Aronovici. *Am Inst Arch J* 3:32-6 Ja '15
- Franchises**
 Franchise value. *Elec R & W Elec'n* 65:1180-2 D 19 '14
 New Jersey decision. H. S. Welsh. *Elec Ry J* 45:57 Ja 2 '15
 Valuation of franchises. *Elec Ry J* 44:1331-3 D 19 '14
See also Electric service companies—Franchises; Municipal franchises; Public service corporations—Franchises; Street railroads—Franchises
- Franklin, Benjamin, 1706-1790**
 Stove trade to honor Benjamin Franklin. *Il Metal Work* 84:88-9 Jl 16 '15
- Fraternity houses**
 Phi Gamma Delta fraternity house, Philadelphia, Pa.; views and plans. *Brickb* 24:77, pl 40-3 Mr '15
- Fraud**
 Machine greengoods game. *Mach* 21:288 D '14
 Safeguarding the company's bank account. E. J. Buckley. *Metal Work* 83:939 Je 25 '15
See also Competition, Unfair; Forgery
- Free energy**
 Free energy of formation of formic acid. G. E. K. Branch. *diags Am Chem Soc J* 87:2816-28 O '15
 Free energy of iodine compounds. G. N. Lewis and M. Randall. *Am Chem Soc J* 86:2259-68 N '14
 Free energy of nitrogen compounds. G. N. Lewis and E. Q. Adams. *Am Chem Soc J* 87:2808-16 O '15
- Free energy of oxygen, hydrogen, and the oxides of hydrogen. G. N. Lewis and M. Randall. *Am Chem Soc J* 86:1969-93 O '14
 Free energy of the various forms of elementary sulfur. G. N. Lewis and M. Randall. *Am Chem Soc J* 86:2468-75 D '14
- Free radicals.** See Radicals (chemistry)
- Freedom of the seas.** See Maritime law
- Freezing**
 Why ice, in refrigerators, prevents freezing. J. D. Bonnar. *Sci Am* 112:249 Mr 13 '15
See also Ice; Refrigeration and refrigerating machinery
- Freezing points**
 Freezing point of low freezing explosives. A. La Motte. *Colliery* 35:317 Ja '15
 Measurement of the freezing-point depression of dilute solutions. L. H. Adams. *diags Am Chem Soc J* 37:481-96 Mr '15
- Freezing tests**
 Laboratory freezing tests. H. Perrine. *diags Concrete Cem* 5:256-7 D '14
- Freight**
 National industrial traffic league annual meeting, Nov. 17-18. *Ry Age* 59:1004 N 26 '15
See also Demurrage; Electric railroads—Freight; Freight car service; Freight cars; Freight handling; Freight ships; Railroads—Freight; Railroads—Rates
- Freight agents.** See Railroads—Freight agents
- Freight car service**
 Car pooling arrangement on International & Great Northern and Sunset-Central lines. *Ry Age* 58:95 Ja 15 '15
 Car service and the shipper. F. C. Maagly. *Ry R* 57:217-19 Ag 14 '15; Same cond. *Ry Age (Mech ed)* 89:293-4 Je '15
 Car surpluses and shortages. *Ry Age* 59:490-1 S 17 '15
 Carriers must furnish tank cars. *Ry R* 56:855-6 Je 19 '15
 Comparative summary of freight cars in service; tabulation. *Ry Age* 59:861-2 O 8 '15
 Danger of freight congestion. A. Hale. *Ry Age* 57:1052 D 4 '14
 Economical car distribution. K. V. Conrad. *Ry Age* 58:357 F 26 '15
 Hearing on embargoes. *Ry Age* 58:306 Ja 29 '15
 Practical car pooling plan. F. M. Lucore. *Ry Age* 58:177-8 Ja 29 '15
 Proper management of freight-car service. J. R. Cavanagh. *Ry Age* 59:700-1 O 15 '15
 Report of committee on relations between railroads. *Ry Age* 59:1014-15 N 26 '15
 Results of operation of Texas car equalization plan. O. C. Castle. *Ry Age* 58:943-4 Ap 30 '15
 Shipper advocates car pooling. J. S. Marvin. *Ry Age* 58:12-14 Ja 1 '15
 Standard home route card for freight cars. J. E. Campbell. *Ry Age* 58:300-2 Ja 29 '15
 Transportation and car accounting officers; summer meeting. *Ry Age* 59:25-6 Jl 2 '15
 Two plans for car pooling compared. A. Hale. *Ry Age* 58:356 F 26 '15
 Unnecessary movement of empty freight cars: committee report of the General superintendents' association of Chicago. *Ry Age* 58:281-3 Ag 13 '15
 Watch your cars and stop carload tracing. F. P. Barr. *Ry Age* 58:453-5 Mr 12 '15
 Ways and means of expediting movement of cars loaded with preferred freight; abstract. M. J. O'Connor. *Ry Age (Mech ed)* 89:510 O '15
See also Demurrage; Freight cars, Interchange of
- Car load**
 Heavier loading of cars. *Ry Age* 57:1033-4 D 4 '14
 Improper loading of box cars. W. H. Sitterly. *Ry Age (Mech ed)* 89:233-4 My '15
- Freight cars**
 Box car end door. G. E. McCoy. *diags Ry Age (Mech ed)* 89:173 Ap '15
 Box car flush door. plan *Ry R* 57:185-6 Ag 7 '15
 British-built hopper cars for the Bengal-Nagpur Ry. F. C. Coleman. *Il Ry R* 57:432-3 O 2 '15
 Canadian built cars for the Belgian state railways. *diag Ry R* 57:441 O 2 '15

Freight cars—Continued

- Car service and the shipper. F. C. Maegly. Ry R 57:217-19 Ag 14 '15; Same cond. Ry Age (Mech ed) 89:298-4 Je '15
- Cars and locomotives ordered in 1914. Ry R 56:36-9 Ja 2 '15
- Defective box cars. C. L. Bundy. Ry Age (Mech ed) 89:80 F '15
- Defective box cars. L. Brown. Ry Age (Mech ed) 89:80 Ja '15
- Defects of modern box cars and their remedies. R. N. Miller. Ry Age (Mech ed) 89:171-3 Ap '15
- End construction of Canadian Pacific stock cars. diags Ry Age (Mech ed) 89:29-30 Ja '15
- Experiments to determine the forces imposed on a truck side frame and the stresses produced. L. E. Endsley. II diags Ry R 56:400-3, 494-7 Ap 3 '10 '15; Same cond. Ry Age (Mech ed) 89:127-9 Mr '15
- Freight car hand brake. diags Ry Age 58:944 Ap 30 '15; Same. Ry Age (Mech ed) 89:258-8 My '15
- Freight car statistics as compiled by the American railway association. Ry R 56:53-4 Ja 9 '15
- Freight car stenciling outfit. H. F. Blossom. diag Ry Age (Mech ed) 89:458 S '15
- Freight cars ordered in 1914. Ry Age 58:16-17 Ja 1 '15
- Freight equipment cars for the Russian government. II diags Ry R 57:419-22 O 2 '15
- Freight terminal car checking system. I. T. Tyson. Ry Age 58:748-9 Ap 2 '15
- Greatest weaknesses in box cars. R. P. Blake. Ry Age (Mech ed) 88:630-1 D '14
- Impact between freight cars in switching service. L. E. Endsley. II Ry R 57:10-13 J1 3 '15; Abstract. Elec Ry J 45:1164 Je 19 '15
- Manual slack adjuster. diags Ry Age 59:948 N 19 '15
- No greatest defect in box cars. C. E. Wood. Ry Age (Mech ed) 89:30 Ja '15
- Proposed design of standard M. C. B. box cars. plans Ry R 57:5-9 J1 3 '15
- Recent additions to Union Pacific freight equipment. II diags Ry Age 58:225-6 F 5 '15
- Roof structures for box cars. Ry R 56:459-60 Ap 3 '15
- Standard box car—a negative viewpoint. R. W. Burnett. Ry Age 58:403-4 Mr 5 '15; Same. Ry Age (Mech ed) 89:121-2 Mr '15
- Standardizing car construction. Ry R 56:389 Je 26 '15
- Steel frame box cars for the Illinois Central. II diags Ry Age (Mech ed) 89:78-80 F '15
- Strengthening of underframes. Ry Age (Mech ed) 89:498 O '15
- Thirty-ton stock car for the Canadian Pacific Ry. R. W. Burnett. II diag Ry R 55:686-7 D 5 '14
- Wooden cars in freight trains. Ry Age (Mech ed) 88:631-2 D '14
- Wooden cars in freight trains. G. E. Smart. Ry Age (Mech ed) 88:581-2 N '14; Same. Ry R 56:695-6 D 5 '14

See also Baggage and express cars; Brakebeams; Freight car service; Loading and unloading; Refrigerator cars; Tank cars; Train resistance

Cost

- Settlement prices for reinforced wooden cars; Master car builders' association committee report. Ry R 56:336-7 Je 19 '15

Cost of maintenance

- Cost of maintenance of equipment: a record of the Waugh draft gear. Ry R 56:66-7 Ja 9 '15
- Record of cost of maintaining car draft appliances. Ry R 56:234 F 27 '15

Repair

- Economies in freight car repairs. H. H. Harvey. Ry R 56:312-13 Mr 6 '15; Same. Ry Age (Mech ed) 89:129-30 Mr '15
- Freight car rehabilitation. Southern railway. diags Ry R 57:576-8 N 6 '15
- Freight car repairs under a piece work system. J. J. Tollin. Ry Age (Mech ed) 89:347-8 J1 '15
- Inspection and repairs of freight cars by piecework. J. J. Tollin. Ry Age (Mech ed) 89:457-8 S '15

- Promoting the proper handling of equipment. E. E. Betts. Ry R 57:497-500 O 16 '15
- Promoting the proper handling of equipment. W. H. Crawford. Ry R 57:563-4 O 30 '15
- Proposed bureau for clearing car repair accounts. C. F. Straub. Ry Age 59:161-2 J1 23 '15

See also Railroads—Shops**Weighting**

- Reweighting and restenciling of cars. J. V. James. Ry Age 58:1128-9 My 28 '15
- Freight cars, Interchange of
Chief interchange car inspectors' and car foremen's association 17th annual convention. Ry Age (Mech ed) 89:522-5 O '15
- Interchange of cars. H. Boutet. Ry Age (Mech ed) 88:623-4 D '14
- Promoting the proper handling of equipment. E. E. Betts. Ry R 57:497-500 O 16 '15
- Promoting the proper handling of equipment. W. H. Crawford. Ry R 57:563-4 O 30 '15
- Freight cars, Steel
Bettendorf all-steel box car. II Ry R 56:801 Je 12 '15
- Narrow-gage cars for the Burma mines Ry. F. C. Coleman. II plans Ry R 57:173-5 Ag 7 '15
- Recent additions to Union Pacific freight equipment. II diags Ry Age 58:225-6 F 5 '15
- Steel box car for the Canadian Pacific. II diags Ry Age 58:1420-2 Je 18 '15; Same. Ry Age (Mech ed) 89:399-401 Ag '15
- Steel gondolas for the Russian government. II Ry Age 59:898-9 N 12 '15
- Union Pacific steel freight cars. II diags Ry Age (Mech ed) 89:73-7 F '15
- Well car of 200,000 lb. capacity. II diags Ry Age (Mech ed) 89:397-8 Ag '15
- Freight claim association
24th annual meeting, Chicago, June 16-18. Ry Age 59:98 J1 16 '15
- Freight claims. See Railroads—Claims
- Freight handling
Car dumping machine with improved features at Conneaut Harbor, Ohio. II plan Ry Age 59:890-2 Ag 27 '15
- Congestion of freight at New York piers. II Int Marine Eng 20:80 F '15
- Cost data for electric trucks in freight houses. Eng Rec 71:403 Mr 27 '15
- Economy gained by handling freight with electric trucks at marine terminals. II Int Marine Eng 20:124-5 Mr '15
- Facilities for shipping and freight handling at river ports. E. E. R. Tratman. Int Marine Eng 20:115 Mr '15
- Freight handling at Havana, Cuba. II Int Marine Eng 20:116-18 Mr '15
- Freight handling at railway marine terminals. C. A. Hardy. diag Int Marine Eng 20:103 Mr '15
- Handling freight with storage battery trucks. II Ry Age 57:1093-4 D 11 '14
- Handling of freight in terminals. R. H. Rogers. Am Inst E E Fro 34:3048-52 D '15
- How the operation of one local freight station was improved. C. E. Anderson. Ry Age 59:1005-7 N 26 '15
- Important principles in the handling of l.c.l. freight. C. G. Johnson. Ry Age 59:1007-9 N 26 '15
- Marine terminal machinery. H. Sawyer. Int Marine Eng 20:109-11 Mr '15
- Mercury freight house tractor truck. II Ry Age 58:361-2 F 26 '15
- Methods of handling L. C. L. outbound freight. E. H. Lee. Ry Age 57:1181-4 D 25 '14; Conclusions. Eng Rec 71:52 Ja 9 '15
- New marine terminals at Beaumont. H. M. Harding. plan Eng N 73:1072-3 Je 3 '15; Same. Int Marine Eng 20:299-300 J1 '15; Same cond. Eng Rec 71:721 Je 5 '15
- New York freight terminals, 1914. Ry Age 59:396-7 Ag 27 '15
- Points of attack in the terminal problem. J. A. Jackson. II Int Marine Eng 20:111-13 Mr '15
- Possibilities open to the central station in solving the freight terminal problem. J. A. Jackson. Gen Elec R 18:1142-4 D '15
- Reservoir effects in freight movements. R. H. Rogers. II Int Marine Eng 20:107-9 Mr '15

Freight handling—Continued

Transfer facilities at marine terminals. H. M. Harding. *Int Marine Eng* 20:98-102 Mr '15

Trucking l. c. l. freight. Rly R 56:352-3 Mr '15

Unloading bananas by machinery. *Int Sci Am* S 79:209 Ap 3 '15

Unloading cargoes by portable machines. *Int Marine Eng* 20:105-6 Mr '15

See also Coal handling; Elevators, Inclined; Freight houses; Hoisting machinery; Loading and unloading; Lumber handling; Ore handling; Railroads—Terminals; Terminals

Freight houses

Design and construction features of the Ocean steamship co.'s terminal at Savannah, Ga. *Plans Eng & Contr* 44:343-4 N 3 '15

Important principles in the handling of l.c.l. freight. C. G. Johnson. *Ry Age* 59:1007-9 N 26 '15

Pittsburgh North side freight station of the P. R. R. H. M. Phelps. *Plans Ry Age* 59:245-6 Ag 6 '15

Ratproof freight house of the Panama railroad. *diag Ry R* 56:159 Ja 30 '15

Freight rates

Development of inland water transportation. J. H. Bernhard. *Eng Rec* 72:332-4 S 11 '15

See also Railroads—Rates

Freight ships

Average draft of ocean vessels. *Eng N* 73:738 Ap 15 '15

Conversion of cargo vessels into bulk oil carriers. F. K. Ruprecht. *Int Marine Eng* 20:165-6, 212-16, 258-9, 309-11, 340-3, 404-6 Ap-S '15

Freight carrying on the Great Lakes. D. A. Willey. *Int Sci Am* S 79:360 Je 5 '15

Freight steamer Nevada. *plans Int Marine Eng* 20:347-8 Ag '15

Fruit carrying steamer van Hogendorp. F. C. Coleman. *Int diag plans Int Marine Eng* 20:67-71 F '15

Influence of discharging appliances on the design of large ore carriers. J. Reid. *diag Engineer* 119:300-1 Mr 26 '15

Lumber operations on the Atlantic coast; modern lumber steamer and complete terminals under construction for shipping lumber from Florida to New York. *diags Int Marine Eng* 20:126-8 Mr '15

Repairs to lake freighter H. M. Hanna, Jr. *Int Marine Eng* 19:554-6 D '14

Self-unloading freight steamer Huron. *Int diags Int Marine Eng* 20:52-3 F '15

Steamer Francis Hanify. *Int diag plans Int Marine Eng* 20:30-2 Ja '15

Steamship Edward Peirce. *plans Int Marine Eng* 19:559-60 D '14

See also Tank ships

Freight stations. See Railroads—Stations

Freight terminals. See Freight handling; Railroads—Terminals; Railroads—Yards; Terminals

Freight trains. See Railroads—Trains

Frequency changers

Parallel operation of frequency changers. G. H. Rettew. *diag Gen Elec* R 13:836-8 Ag '15

Friction

Allowable friction values; effect of the speed of rotation on the operation of a friction clutch. B. D. Pinkney. *Mach* 21:793-4 Je '15

Cutting down friction waste. J. C. Taylor. *Power* 42:488 O 5 '15

Cylinder friction and lubrication testing apparatus. A. Flowers. *diag Power* 42:208-10 Ag 10 '15

Friction drive. C. W. Larson. *Am Inst E E Pro* 34:2674-6 N '15

Friction losses in the universal joint; abstracts. P. F. Walker and W. J. Malcolmson. *Iron Age* 94:1438-9 D 24 '14; *Am Soc M E J* 37:17-20 Ja '15

How to reduce machine friction. N. G. Near. *Metal Ind n s* 13:409 O '15

Recent tests of the effective force between driving belt and pulleys; abstract. A. Friedrich. *Am Soc M E J* 37:554-6 S '15

Tests of frictional resistance of concrete on shale. E. L. Laster. *Int diag Eng N* 73:156-3 J1 22 '15

Theory of lubrication. L. Ubbelohde. *Gen Elec R* 18:968-72, 1074-81, 1118-21 O-D '15

Theory of resistance to rolling of a hard body over a plastic surface; abstract. B. B. Schultz. *Am Soc M E J* 37:478-9, 555-8 Ag-S '15

See also Bearings; Lubrication and lubricants

Frost

Frost 16 feet deep found under refrigerator plant. J. N. Jensen. *Int Eng Rec* 72:297 S 4 '15

Frost protection

Self-lighting attachment for smudge pots. C. A. Byers. *Int Sci Am* 113:445 N 20 '15

Frosted fruit. See Fruit, Frosted

Fructose pentacetate

Crystalline d-fructose pentacetate. C. S. Hudson and D. H. Brauns. *Am Chem Soc J* 37:1283-5 My '15

Fruit

Pre-cooling of Canadian fruits. E. Smith. *Am Soc M E J* 37:190-1 Mr '15

See also Cannon ball tree; Osage orange; Tamarinds

Fruit, Frosted

Sorting out frosted oranges and lemons. S. McKinstry. *Int Sci Am* 111:512 D 19 '14

Fruit juices

Studies on fruit juices. H. C. Gore. *U S Agric Bul* 241:1-19 '15

Fuel

Boiler plant of the Bessemer coal and coke company; using as fuel a mixture of coal and slate. W. O. Rogers. *Int diags plan Power* 41:798-801 Je 15 '15

CO₂ and the character of fuel. T. H. Reardon. *Power* 41:574 Ap 27 '15

Chart of relative values of fuels. R. A. Rover. *Power* 42:441 S 28 '15; Same. *Eng & Min J* 100:600 O 9 '15

Coal substitutes; use of chalk fuel and peat proposed in England. *Sci Am* S 79:352 My 29 '15

Comparison of the economy of powdered coal, oil and water gas for heating furnaces. C. F. Herington. *Eng N* 73:1156-8 D 10 '14

Firing low-grade fuel and wastes. S. H. Bunnell. *Power* 41:373 Mr 16 '15

Fuel values of coal gas and oil; operators of plants in Oklahoma compare costs on evaporation-unit basis. *Elec W* 65:1470 Je 5 '15

Fuel values of coal, oil and gas. E. H. Hunter; L. G. Purtee. *Elec Ry J* 45:984 My 23 '15

Future methods of utilizing coal. C. F. Hirschfeld. *Power* 41:438-9 Ap 6 '15; Same. *Sci Am* S 80:58-9 J1 24 '15

Gas producers and concentration of power at mines. R. H. Fernald. *Colliery* 35:415-17 Mr '15

How much CO₂ to expect with various kinds of fuel. V. J. Azbe. *Power* 42:712-14 N 23 '15

Making fuel out of garbage. W. D. Hornaday. *Int Munic Eng* 48:304-5 My '15

Saving fuel in heating a house. L. P. Breckenridge and S. B. Flagg. *U S Bur Mines Tech Pa* 97:1-33 '15; Same cond. (Firing various fuels in residence heaters) *Metal Work* 34:552-4, 584-6, 613-15 O 29-N 12 '15

Steam generation in a wood-distilling plant. L. Eddy. *diag Power* 41:846 Je 22 '15

World's supply of fuel and motive power. D. Clerk. *Engineer* 120:425-6 N 5 '15

See also Alcohol as fuel; Automobile engines—Fuel; Blast furnace gas; Briquets; Calorimeters and calorimetry; Cinders; Coal; Coke; Furnaces; Gas, Natural; Gas and oil engines—Fuel; Gas as fuel; Heating; Lignite; Locomotives—Fuel; Peat; Petroleum as fuel; Smoke; Tar as fuel; Waste fuel; Wood as fuel

Cost

Comparative furnace efficiency. R. J. Weitlaner. *Met & Chem Eng* 13:357-61 Je '15

Furnace curves. R. J. Weitlaner. *Met & Chem Eng* 13:428 J1 '15

Fuel—Continued

Testing

Evaporation tests with peat and peat coke as fuels. H. Winkelmann. *Am Soc M E J* 37: 289 My '15

Fuel-supply contracts and the progress of more scientific methods of purchase and control in America and Europe. J. B. C. Kershaw. *Met & Chem Eng* 13:393-6 Je '15

Fuel economizers

Counter-current principle as applied to directly-fired and to waste-heat boilers: abstract. G. H. Gibson. *Am Soc M E J* 37:53-5 Ja '15
Economizers in modern high-pressure power plants. G. C. Usher. *Power* 42:520 O 12 '15
Economizers in modern high-pressure power plants. N. G. Reinicker. *Power* 42:555-6 N 9 '15

Flak street station, Chicago, economizers. T. Wilson. *diags Power* 42:477-8 O 5 '15

Fuel economy increased 12 per cent with economizers. *Elec W* 65:1634 Je 19 '15

Hartford economizer for Ford cars. *Il Horseless Age* 34:911-12 D 23 '14

Notes on economizer operation. *Locomotive* 30: 112-14 O '14

Fuel economy

Analysis of dependent sequence as a guide to fuel economy. H. Emerson. *Ry R* 57:19-23 J 1 '15; Same cond. *Ry Age* 58:1057-9 My 21 '15; Same cond. *Ry Age* (Mech ed) 89:273-4 Je '15

Coal and its economical use. P. S. Thompson. *Inst E E J* 53:184-7 Ja 15 '15; Abstract. *Elec W* 65:422-3 F 13 '15; Discussion. *Inst E E J* 53:187-90 Ja 15 '15

Coal, the big item in a steam power plant. *Power* 41:185 F 2 '15; Same. *Sci Am S* 79: 125 F 20 '15

Economic utilisation of coal and the production of cheap power. W. F. Reid. *Engineer* 120:92 J 1 '15

Efforts at fuel economy, Rock Island lines. W. J. Tollerton. *Ry R* 57:354-5 S 13 '15

Experiments in coal consumption. *Int Marine Eng* 20:41-2 Ja '15

Fuel economy and the proper utilisation of coal. W. A. Bone. *Engineer* 120:357-8 O 15 '15

Fuel economy on locomotives. *diag Ry R* 57: 181-5 Ag 7 '15

Fuel economy on the Great Western. *Il Ry Age* 58:195-7 Ja 29 '15

Full train tonnage and fuel economy. *Ry R* 56:815 Je 12 '15

Furnace curves. R. J. Wettliener. *Met & Chem Eng* 13:425-8 J 1 '15

Loss of combustible in ashes. *Power* 42:683-4 N 16 '15

Manila plant employees receive bonus for increasing coal economy. *Elec W* 66:694 S 25 '15

Preventing losses in factory power plants. S. J. H. White. *Iron Age* 95:773-9 Ap 8 '15; Excerpts (How daily records save the coal; How a 25 per cent. saving was made). *Sci Am S* 80:16, 19 J 13-10 '15

Reducing the fuel expense. J. F. Springer. *Il Am Ind* 15:23-30 My '15

Saving coal. C. Maler. *Ry Age* (Mech ed) 89: 442 S '15

U-tube carbon dioxide indicator. H. A. Cunningham. *Il diag Iron Age* 96:870-2 O 14 '15

See also Fuel economizers; Grates; Locomotives—Fuel

Fuel stations. See Coal stations

Fuel testing

Wood and coal as fuel for steam boilers. H. B. Reynolds. tables *Sibley J* 30:14-20 O '15

Full crew law. See Railroad law

Fullagar engine

New type of internal combustion engine: abstract. H. F. Fullagar. *diags Am Soc M E J* 37:127-8 F '15

Fulling

Difficulty in fulling overcome. *Textile World* 49:462-3 J 1 '15

Fulling mill wrinkles and streaks. *Textile World* 50:115-16 O '15

Fulton (submarine tender)

Submarine tender Fulton: Diesel engines installed. *Il diag Int Marine Eng* 19:285-7 J 14 '14

Trials of the submarine tender Fulton: first United States naval vessel to be fitted with Diesel engines. *Il Int Marine Eng* 20:76-8 F '15

Funnels

Pattern for irregular shaped copper funnel. *diags Metal Work* 34:6-+ J 1 '15

Furka railway

Furka railway: a new Alpine railway from the Rhône to the Rhine. A. Gradenwitz. *Il Sci Am S* 79:344-5 My 29 '15

Furnace industry

Heading off complaints from furnace users. *Metal Work* 33:125-6 Ja 15 '15

Helping furnace dealers help themselves. *Metal Work* 33:11 Ja 1 '15

How to sell warm air furnaces at a profit. H. D. Campbell. *Metal Work* 33:43 Ja 1 '15

National warm air heating and ventilating association discuss warm air heating in convention. *Metal Work* 33:335-6 F 26 '15

Producers give assistance to distributors. *Metal Work* 33:37-8 Ja 1 '15

Warm-air furnace and the public. W. Wimmer. *Metal Work* 33:257 F 12 '15

Furnace lining

Cement as furnace lining. H. L. Strong. *Power* 41:274-5 F 23 '15

Concrete as a furnace lining. J. C. Hawkins. *Power* 41:169-70 F 2 '15

Concrete not suitable for furnace linings. A. W. Uhl. *Power* 42:453-4 S 28 '15

Dolomite and slag furnace lining. *Eng & Min J* 100:886 N 27 '15

Repairing furnace linings with compressed-air gun and torch. A. Schwarz. *Met & Chem Eng* 13:582-3 S 15 '15

Furnace pipes. See Furnaces, Hot air—Pipes and fittings

Furnace shields

Tapping shield at Anaconda. *Il Eng & Min J* 99:494 Mr 13 '15

Water-cooled equipment for sheet mills. *Il diags Iron Age* 95:441-3 F 25 '15

Furnaces

Air-cooled furnace arches increase efficiency. *diags Elec W* 65:1186 My 8 '15

Air excess in boiler furnace practice. D. F. Nisbet. *Sibley J* 29:122-3 Ja '15

Automatically maintaining constant ratio between air and coal supplied to furnaces. *Il diag Elec W* 65:104 Ja 9 '15

Bearing-babbiting furnaces. J. C. Donovan. *Il Elec Ry J* 45:153 J 1 '15

Chain screen doors for oven and furnace openings. *Il Sci Am* 113:233-4 S 11 '15; *Met & Chem Eng* 13:875-8 N 15 '15

Characteristics of firebrick for boiler furnaces. B. H. Tenney. *diags Elec W* 66:1036-7 N 13 '15

Corrugated furnaces for vertical fire-tube boilers. F. W. Dean. *diag Power* 42:103 J 1 '15

Factors governing the combustion of coal in boiler furnaces: a preliminary report. J. K. Clement. J. C. W. Frazer and C. E. Augustine. *Il diags U S Bur Mines Tech Pa* 63:1-41 '14; Excerpts. *Sci Am S* 79:359 Je 5 '15

Firebrick for boiler furnaces. A. D. Williams. *Power* 41:297-3 Mr 2 '15; Same cond. *Ind Eng* 15:107-8 S '15

Firebrick for boiler settings. W. A. Heisel. *Power* 41:883-7 Je 29 '15

Fusibility of coal ash in various atmospheres. A. C. Fieldner and A. E. Hall. *diags J Ind & Eng Chem* 7:402-6 My '15

Gas explosions in boiler furnaces. *diags Power* 41:553-4, 551-3, 719, 735-6 Ap 20, My 11, 25, Je 8 '15

Gas furnace for heating soldering irons. R. H. Parsons. plan *Elec Ry J* 46:24 J 1 '15

How smokeless combustion is secured by the Boston Edison company. *Il diag Elec W* 66: 469 Ag 28 '15

Industrial uses of gas. H. M. Thornton. *Il Am Gas Light J* 103:17-22 J 12 '15

Lynne furnace water arch. *diags Power* 42:677 N 16 '15

Metallurgical and special furnaces. O. Monnett. *diags Power* 41:432-3 Mr 30 '15

Morrow furnace system. *diag Power* 41:425 Mr 30 '15

Furnaces—Continued

- Nicholson furnace. *Il* diag Power 40:848 D 15 '14
- Results of changes in boiler furnace. M. B. Smith. diag Power 41:92-3 Ja 19 '15
- Return-tubular boiler furnace development. O. Monnett. diags Power 40:93-4 J1 21 '14; Same. Sci Am S 78:394-5 D 19 '14
- Staying a furnace arch. J. C. Hawkins. diag Power 41:600 My 4 '15
- Thermal insulation of high-temperature equipment. F. A. Boeck. diags Am Inst Min E Bul 104:1539-50 Ag '15; Excerpts. Iron Age 96:353-4 Ag 12 '15; Discussion. Am Inst Min E Bul 108:2513-19 D '15
- Typical industrial appliances. *Il* Am Gas Light J 103:85-7, 90-3 Ag 9 '15
- Use of corrugated furnaces for vertical fire tube boilers; with discussion. F. W. Dean. diag Am Soc M E J 37:445-6 Ag '15
- Wiegand chain screen door. *Il* Int Marine Eng 20:233-4 My '15; Power 42:81 J1 20 '15
- See also Blast furnaces; Boilers; Charging machines; Clinkers; Cupola furnaces; Electric furnaces; Fire pots; Firing; Foundry practice; Fuel; Fuel economy; Furnaces, Metallurgical; Grates; Kilns; Mechanical draft; Metallurgy; Smelting
- Repair**
- Cement-gun furnace repairs. Eng & Min J 90: 866 My 15 '15
- Furnaces, Electric. See Electric furnaces
- Furnaces, Hot air**
- Efficiency ratings for warm air furnaces. A. C. Willard. *Il* diags Metal Work 83:932-5 Je 25 '15
- Evolution of warm air furnace construction. Metal Work 83:217-18 F 5 '15
- Frame building heated by warm air system. M. H. Ressler. *Il* plans Metal Work 84:400-1 S 24 '15
- Furnaces fall because poorly installed. Metal Work 83:410 Mr 19 '15
- Heating a cottage by warm air furnace. plans Metal Work 83:160 Ja 22 '15
- Heating a suburban house by furnace. *Il* diags plans Bldg Age 37:19-26 Mr '15
- Humidity control of warm air furnaces. C. E. Stewart. diag Metal Work 83:30 Ja 1 '15
- "New idea" pipeless furnace. *Il* Metal Work 84:271 Ag 27 '15
- Regulating warm air furnace practice; tentative recommendations for a standard of procedure. Metal Work 83:646-8 Ap 30 '15
- Return flue warm-air furnace. diag Metal Work 83:271 F 12 '15
- Rudy warm-air furnaces. *Il* Metal Work 84:626 N 12 '15
- Size of fire pot. Metal Work 84:620-1 N 12 '15
- Theory and practice in warm-air heating. Metal Work 83:661+; 84:109-10 My 7, J1 23 '15
- Warm air furnace design and installation. diags Metal Work 83:352-3, 375-6, 477-8, 509-11, 569-70, 640-1+, 813-14; 84:1-2, 80-1, 149-50, 387-8, 525-6, 575-6 Mr 5-12, 26-Ap 2, 16, 30, Je 4, J1 2, 15, 30, S 17, O 22, N 5 '15
- Warm air furnace fails to heat residence. W. H. James. plan Metal Work 84:281-2 Ag 27 '15
- Warm air furnace in trying location. *Il* plans Metal Work 83:327-30 F 26 '15
- Warm-air furnace practice. Metal Work 84: 536 O 22 '15
- Warm air furnaces use coal, wood and oil fuel. *Il* Metal Work 83:411 Mr 19 '15
- Warm air heating association's convention. Metal Work 83:899-901 Je 18 '15
- Pipes and fittings**
- Determining correct sizes of furnace pipes. diag Metal Work 82:821-2 D 25 '14
- Modern practice of recirculating air effects economy and makes satisfied customers. G. D. Crain, Jr. Metal Work 82:789 D 11 '14
- Practical hints for furnace erectors. diags Metal Work 82:819-20 D 25 '14
- Practical side of furnace installation. Metal Work 84:111 J1 23 '15
- Reducing the fuel bill by saving the heat waste. Metal Work 83:356 Mr 5 '15
- Rules for warm-air furnace installation. Metal Work 84:488-91 O 15 '15
- Simple chart for designing furnace elbows. Metal Work 84:310-11 Ag 13 '15
- Simplified pattern for a Y fitting. diags Metal Work 83:258 F 12 '15
- Simplified pattern for metal center boot. W. Neubecker. diags Metal Work 84:669+ N 26 '15
- Theory and practice in warm-air heating. diags Metal Work 84:310-11, 329+, 558-9 S 3-10, O 29 '15
- Trunk-line system heats Michigan bungalow. *Il* plans Metal Work 84:436-7 O 1 '15
- Warm air furnace design and installation. diags Metal Work 83:352-3, 375-6, 813-14; 84:1-2, 80-1, 525-6, 575-6 Mr 5-12, Je 4, J1 2, 16, O 22, N 5 '15
- Warm-air trunk line system for residence. *Il* plans Metal Work 84:647-8 N 19 '15
- Warming and circulating air in residence. diags plan Metal Work 83:255-6 F 12 '15
- Why furnace failed to heat bed room. plans Metal Work 83:291 F 19 '15
- Furnaces, Metallurgical**
- Annealing oven for tires. W. E. Grum-Grzimallo. diags Iron Age 94:1397 D 17 '14
- Areagrams of open-hearth furnace flues. A. R. Mitchell. Iron Age 95:607-8 Mr 18 '15
- Bellevue heat-treating furnaces. *Il* Iron Age 96:1171-2 N 18 '15
- Carborundum and cork exhibits at the Panama-Pacific international exposition. *Il* Met & Chem Eng 13:458-60 J1 '15
- Case-hardening retorts and furnaces. R. A. Millholland. *Il* Iron Age 96:1111-14 N 11 '15
- Coal-dust fired reverberators at Washoe reduction works. L. V. Bender. Am Inst Min E Bul 97:73-81 Ja '15; Abstract. Am Soc M E J 37:188-9 Mr '15; Abstract. Met & Chem Eng 13:184 Mr '15
- Coal-dust fired reverberatory furnaces; discussion of the papers of D. H. Browne, L. V. Bender and R. E. H. Pomeroy. Am Inst Min E Bul 101:1174-86 My '15
- Coal-dust fired reverberatory furnaces of Canadian copper co. D. H. Browne. diags Am Inst Min E Bul 97:49-60 Ja '15; Same cond. Met & Chem Eng 13:182-4 Mr '15; Abstract. Am Soc M E J 37:187 Mr '15
- Comparative furnace efficiency. R. J. Weltlaner. Met & Chem Eng 13:357-61 Je '15
- Continuous rotary heat-treating furnace. F. M. Paull. *Il* Iron Age 96:569 S 9 '15; Same. Horseless Age 36:234 S 1 '15; Same. Sci Am 113:363 O 23 '15
- Description of nut, bolt and rivet shop of Upson nut co. with details of arrangement and equipment. R. V. Sawhill. *Il* plan Iron Tr R 56:1249-51 Je 17 '15
- English continuous billet furnace. *Il* diags Iron Tr R 57:841-2 O 23 '15
- English gas-fired melting furnaces. diag Am Gas Light J 102:140 Mr 1 '15
- Feeding reverberatory furnaces along the side walls. D. H. Browne. Eng & Min J 99:412-13 F 27 '15
- Fettling reverberatories. H. L. Charles. Eng & Min J 100:648-9 O 16 '15
- Flexible heat-treating installation. *Il* diag Iron Age 96:507-10 S 2 '15
- Furnace curves. R. J. Weltlaner. Met & Chem Eng 13:425-3 J1 '15
- Furnace for making steel from ore. diags Iron Tr R 57:743+ O 14 '15
- Heating an open-hearth furnace by tar. A. Greiner. Iron Age 95:1072-3 My 13 '15; Same. Engineer 119:495 My 14 '15; Same. Iron Tr R 56:1017-18 My 20 '15; Abstract. Met & Chem Eng 13:445 J1 '15
- Improvements for Ropp roasters. E. Hall. diag Eng & Min J 100:147-8 J1 24 '15
- Internally fired nail bluing furnace. *Il* Iron Age 95:1295-6 Je 10 '15
- Laist roasting patents. diags Eng & Min J 99:282-4 F 6 '15
- Low-pressure oil-burning metallurgical furnaces. *Il* Met & Chem Eng 13:510-11 Ag '15
- Modern plant for rolling iron; St. Louis screw co. H. C. Estep. *Il* diags plans Iron Tr R 57:82-9+ J1 8 '15
- New ingot heating furnace. *Il* diags Engineer 120:162-4 Ag 13 '15
- New iron mill equipped to assure low costs. O. J. Abell. *Il* diag Iron Age 96:75 J1 8 '15

Furnaces, Metallurgical—Continued

- New system for burning powdered coal in metallurgical furnaces. C. F. Herington. *Il plans Eng N 73:1028-30 My 27 '15*
- Newnam hearth. W. E. Newnam. *Il Am Inst Min E Bul 100:628-30 O 16 '15; Same. Eng & Min J 100:628-30 O 16 '15; Excerpts. Met & Chem Eng 13:974 D 13 '15*
- Notes on the reverberatory furnace. F. R. Pyne. *Met & Chem Eng 13:292-3 My '15*
- Perkins gas-fired reverberatory furnace. plan Eng & Min J 100:190 J 31 '15
- Petroleum as fuel under boilers and in furnaces for heating, melting, and heat treatment of metals. W. N. Best. *Il diags Am Inst Min E Bul 104:1530-7 Ag '15; Excerpt. Met & Chem Eng 13:767 O 15 '15*
- Problems in burning powdered coal. A. S. Mann. *Il diags Gen Elec R 18:920-1, 959-65 S-O '15; Same. Iron Age 96:632-4 S 16 '15*
- Producer gas for heat treating. *Il diags Iron Tr R 57:531-3 S 16 '15*
- Protecting reverberatory walls at Douglas, Ariz. F. Rutherford. *Eng & Min J 100:843 N 20 '15*
- Rectangular mechanical furnaces. G. Vivian. *diags Eng & Min J 99:181-3 Ja 23 '15*
- Repairing metallurgical furnaces with air guns. *Met & Chem Eng 13:416 J 1 '15*
- Rissmann & Ruebel roasting furnace. *diag Eng & Min J 99:326 F 13 '15*
- Simple furnace for melting brass. R. F. Calvert. *Il Ry Age (Mech ed) 89:36 Ja '15*
- Standardizing air furnace practice. A. L. Pollard. *Foundry 43:412-13 O '15*
- Tests of natural gas-fired brass furnaces. F. L. Wolf and K. B. Burr. *diags Foundry 43:153-7 Ap '15*
- Thermal insulation of high-temperature equipment. P. A. Boeck. *diags Am Inst Min E Bul 104:1539-50 Ag '15; Excerpts. Iron Age 96:353-4 Ag 12 '15*
- Two die and shell hardening furnaces. *Il Iron Age 96:79 J 8 '15*
- Washed metal. H. D. Hibbard. *Il plan Am Inst Min E Bul 102:2387-94 D '15*
- Waste-heat boilers. O. Monnett. *diags Power 41:196-7 F 9 '15; Same. Eng & Min J 99:358-9 F 20 '15*
- Wiley rotary-hearth roaster. *Il Eng & Min J 99:414-15 F 27 '15*
- Wood-burning assay furnaces. *Met & Chem Eng 13:924-5 D 1 '15*
- Zinc smelters' roasting furnaces. *Eng & Min J 99:420 F 27 '15*
- See also Blast furnaces; Crucibles; Cupola furnaces; Electric furnaces; Metallurgy; Smelting*
- Furniture**
- Designs of built-in furniture. J. G. Dempsey. *Il Bldg Age 37:57-8 O '15*
- See also Cabinet making; Chairs; House decoration; Sewing cabinets*
- Furniture stores**
- Electrical service in furniture store of the Paine furniture company, Boston. *Il Elec W 65:874-5 Mr 13 '15*
- Fuses, Electric.** *See Electric fuses*
- Fusible plugs**
- Investigation of fusible tin boiler plugs. G. K. Burgess and P. D. Merica. *Il U S Bur Stand Tech Pa 53:1-37 '15; Same cond. J Ind & Eng Chem 7:324-9 O '15; Abstracts. Iron Age 95:1403-4 Je 24 '15; Am Gas Light J 103:29-30 J 12 '15; Am Soc M E J 87:554 N '15; Power 42:733-4 N 23 '15*
- Investigation of fusible tin boiler plugs. G. K. Burgess and P. D. Merica. *Metal Ind n s 13:321 Ag '15; Same. Elec W 66:303-4 Ag 7 '15; Same. Power 42:190-1 Ag 10 '15; Same. Met & Chem Eng 13:588 S 1 '15*
- Fusion, Latent heat of**
- Specific heat and heat of fusion of ice. H. C. Dickinson and N. S. Osborne. *diags U S Bur Stand Bul 12:49-81 O 23 '15; Abstracts. J Fr Inst 179:489-91 Ap '15; Power 41:565 Ap 27 '15; Am Soc M E J 37:294-5 My '15*

G**Gages**

- Accurate tapered plug gages. J. Mahon. *diags Mach 21:320 D '14*
- Combined wheel and track gage. C. M. Feist. *diag Elec Ry J 46:238 Ag 7 '15*
- Condition gage for centrifugal pumps. G. M. Peek. *diag Eng N 72:1268 D 24 '14*
- Cylinder testing gage. H. E. McCray. *diag Mach 21:749 My '15*
- Devices for measuring the flow of sewage. E. Wright, Jr., and others. *Il diags Boston Soc E J 1:439-54 O '14; Same. Eng & Contr 43:508-11 Je 9 '15*
- Equipment and methods in largest refrigeration system. C. H. Bromley. *Il diags Power 41:9-10 Ja 5 '15*
- External scale depth gage. E. Lea. *diag Mach 21:838 Je '15*
- Gages for measuring rail wear. A. R. Bailey. *Il Elec Ry J 46:1042 N 20 '15*
- Gaging shrapnel shells. *Il diags Mach 21:638-9 Ap '15*
- Limit gage for distance between an inside and an outside surface. *diags Mach 21:493 F '15*
- Limit gage for measuring recessed work. M. T. Byrne. *diags Mach 21:409 Ja '15*
- Setting of angle gages. W. S. Rowell. *Mach 21:743 My '15*
- Simple and efficient recording gage for weir measurements. *Il diags Eng N 73:829-31 Ap 29 '15*
- Simple and efficient recording gage for weir measurements. D. E. Adams and E. I. Roberts. *Il diags Eng N 73:1136-6 Je 10 '15*
- Taft-Peirce tool-room specialties. *Il Mach 21:835-6 Je '15*
- Thread tool gages. *diags Mach 21:784-5 Je '15*
- See also Draft gages; Micrometers; Pressure gages; Water gages*
- Galactan**
- Galactan determination. W. H. Dore. *J Ind & Eng Chem 7:721-2 Ag '15*
- Galactose pentacetate**
- Conversion of galactose pentacetate to an isomeric form. C. S. Hudson and H. O. Parker. *Am Chem Soc J 87:1589-91 Je '15*
- Existence of a third crystalline pentacetate of galactose. C. S. Hudson. *Am Chem Soc J 87:1591-3 Je '15*
- Galleries, Art.** *See Art galleries*
- Galvanic batteries.** *See Electric batteries*
- Galvanizing**
- Corrosion of iron pans in zinc melting. *Eng & Min J 100:478 S 18 '15*
- Determination of rainfall rates. Pawtucket, R. I. G. A. Carpenter. *Il Eng N 74:148-9 J 12 '15*
- Determination of spelter coating on sheets and wire. J. A. Aupperle. *Metal Ind n s 13:329-30 Ag '15; Same. Iron Age 96:132 J 1 '15; Same (Maintaining galvanizing standards) Iron Tr R 56:1310-1 Je 24 '15*
- Galvanizing malleable castings. E. Touceda. *Foundry 42:470-1 D '14; Same. Iron Tr R 55:1137-8 D 17 '14*
- General electric practice in sherardizing. *Il diags Iron Age 96:1108-10 N 11 '15*
- Hot galvanizing. H. Chambers. *plan Engineer 120:160-2 Ag 13 '15*
- Practical side of sherardizing. C. L. Lucas. *Il Mach 21:361-4 Ja '15; Same. Sci Am S 79:212-13 Ap 3 '15*
- Protective coatings for iron and steel. E. P. Later. *Foundry 42:493; 43:35-1 D '14-Ja '15*
- Sherardizing; abstract. S. Trood. *Am Soc M E J 37:656 N '15*
- Testing spelter coating in France. C. Coulon. *Iron Tr R 57:401; Discussion. J. A. Aupperle. 57:401 Ag 26 '15*
- See also Electroplating*
- Galvanometers**
- Galvanometer mirrors; vacuum galvanometers; the most efficient combination of thermopile and galvanometer resistance. W. W. Coblentz. *pls U S Bur Stand Bul 11:177-82 N 15 '14*
- See also Electric measurement*

Galveston, Texas

Hurricane, 1915

- Builders of the causeway tell of the storm's effect. Eng Rec 72:276 Ag 28 '15
 Curbing the sea at Galveston. H: M. Robert. Il Sci Am 113:268 S 25 '15
 Effect of Galveston storm on seawall and causeway. R. P. Babbitt. Eng N 74:427 Ag 26 '15
 Galveston adopts plan to strengthen its waterfront defense against future storms. Il diag Eng Rec 72:576-7 N 6 '15
 Galveston storm damage. Il Eng N 74:469-72 S 2 '15
 Galveston survives hurricane. Il map Eng N 74:424-6 Ag 26 '15
 Galveston's sea-wall checks hurricane's devastation. E. B. Van de Greyn. Il diags Eng Rec 72:371-5 Ag 28 '15
 Gulf storms and the recent Galveston flood. E. L. Corthell. Eng N 74:758 O 14 '15
 John B. Hawley confirms view that sea-wall saved Galveston. Eng Rec 72:276 Ag 28 '15
 Metal roof coverings in Galveston hurricane. C: D. Puckett. Il Metal Work 84:386 S 10 '15
 Meteorological analysis of storm indicates similarity to hurricane of 1900. map Eng Rec 72:276-6 Ag 28 '15
 Rush work after storm restores Galveston's water supply and rail connections. E. B. Van De Greyn. Il Eng Rec 72:500-1 O 23 '15

Water supply

- New well water supply of Galveston, Texas. H. G. Wheaton. Il Eng & Contr 44:385-6 N 17 '15
 Gamble, Francis Clarke, 1848- President of the Canadian Soc. C. E. G. R. G. Conway. por Eng N 73:302-3 F 25 '15
 Game protection
 Forests and game preservation. O. H. Van Norden. Il Am For 21:111-16 F '15
 Gangrene
 Quinine in the treatment of gaseous gangrene. K. Taylor. Sci Am S 80:242-3 O 16 '15
 Gangways
 Emergency marine gangway. Il Sci Am 112: 410 My 1 '15
 Ganister
 Ganister-lined converters. J: Gregson. Iron Age 94:1292 D 3 '14
 Garage association, National. See National garage association
 Garages
 A. C. A. opens its new annex garage. Il plan Horseless Age 35:135-6 Ja 27 '15
 Building garage over a creek. Automobile 33: 286-7 Ag 12 '15
 Garage building built with a purpose. Il Horseless Age 36:295-6 S 15 '15
 Garage built of concrete blocks. Il Bldg Age 37:39 Ap '15
 Garage business—buildings, equipment, methods. P. M. Heidt. Il Horseless Age 36:394-5 O 15 '15
 Garage of unique conception. Il Bldg Age 37: 25-8 O '15
 Garage on estate of Edward C. Schaefer, Esq., New Rochelle, N. Y.; views and plan. Brick 24:190 Ag '15
 Handling transients at the small garage. Horseless Age 35:858-60 Je 23 '15
 Making courtesy work for you. Horseless Age 34:813-14 Ag 26 '14
 Problem of handling the transient customer; how the garage men of Long Island are getting along with little live storage. F. H. Brown. Horseless Age 35:637-40 My 12 '15
 Specializing on Ford cars. Horseless Age 35: 560c Ap 28 '15
 Storage and handling of gasoline in the garage. H. T. Wade. Il Sci Am 112:12-13 Ja 2 '15
 System in a New Hampshire garage. Il Horseless Age 35:633 My 12 '15
 Up-to-date garage on the Santa Fe trail. Il Horseless Age 35:636 My 12 '15
 Well planned plant and how it's run; Southern motors co., Louisville, Ky. Il Horseless Age 35:292-99 Mar. 15 '15

Where system pays in a modern garage—two branches of Royal garage in New York. Il Horseless Age 36:203-5 Ag 15 '15
 See also Automobile service stations

Accessories department

- Card records in selling accessories. Horseless Age 35:229-30 F 17 '15
 Combining storage and accessory sales. Il Horseless Age 35:683-4 My 19 '15
 Making the specialty demonstrate itself. M. E. Faber. Horseless Age 36:89 J1 21 '15
 Merchandizing of automobile accessories. E. A. Cassidy. Horseless Age 35:857-8 Je 23 '15

Accounting

- Apportionment of expense items. Horseless Age 35:367-8 Mr 17 '15

Equipment

- Another electrical adjunct to the gasoline automobile. Il Elec W 60:981 O 30 '15
 Garage alarm, diags Elec R & W Elec'n 66: 387-8 F 27 '15
 New A. C. A. garage uses ramps. Il plan Automobile 32:328-9 F 18 '15
 Outfit for truing valves. D. A. Hampson. diag Horseless Age 35:847 Je 23 '15

Heating and ventilation

- Heating a garage. plan Metal Work 84:16-17 J1 2 '15
 Heating and ventilating stables and garages. C: L. Hubbard. diags Dom Eng 72:168-70 Ag 7 '15
 Heating system for a garage. plans Dom Eng 72:375 S 25 '15
 Hot water heating system for garages. Il Dom Eng 72:228-9 Ag 21 '15

Laws and regulations

- Amendments moderate stringent garage laws. Horseless Age 36:30-1 J1 7 '15
 Boston's new garage laws now effective. Horseless Age 35:136-7 Ja 27 '15
 Fight against garage regulations in New York state. Horseless Age 34:861-4 D 16 '14
 Garage men protest against 50-foot rule in New York. Horseless Age 35:138-50 Ja 27 '15
 Reasonableness of ordinance as to garages. Horseless Age 34:849 D 9 '14
 Why is an oil separator? R. H. Johnston. diags Horseless Age 36:297-8 S 15 '15
 Garages, Electric
 Constant-potential charging system effects saving in Chicago garage. Il Elec W 65:865-6 Ap 8 '15
 Electric commercial car garage in Chicago. Il Elec R & W Elec'n 67:713-14 O 16 '15
 Electric vehicle operation—an actual service study. A. S. Wells. plan Elec R & W Elec'n 66:465-64 Mr 6 '15
 Electrical equipment of garages. N. G. Meade. Il diags Elec R & W Elec'n 66:53-4+ Ja 2 '15
 New electric garage for charging on the constant-potential system. Il Elec R & W Elec'n 65:1111-12 D 5 '14
 New York's co-operative electric garage. Il Elec R & W Elec'n 66:659-4 Ap 3 '15; Elec W 65:810 Mr 27 '15
 Operating features of large electric-vehicle garage. Il diags Elec W 66:1145-7 N 20 '15
 Garages, Municipal
 Baltimore's municipal garage; itemized costs of operation and maintenance. W. T. Childs. Il Munic J 38:463-6 Ap 8 '15
 Municipal garage at Cincinnati. K. C. Cardwell. Il Munic J 38:1-3 Ja 7 '15
 Oakland municipal garage. Eng N 74:1033 N 25 '15

Garages, Portable

- Automobile sheet metal work in western city. Il Metal Work 84:152-3 J1 30 '15

Garbage. See Refuse and refuse disposal

Garbage collection. See Refuse collection

Garden cities

- Billerica garden suburb. A. C. Comey. Il plan Eng N 73:815 Ap 29 '15

Gardening

See also Electrohorticulture; Garden cities; Gardens

Gardens

Garden on an English estate; Woolley Hall. E. W. Gregory. II Brickb 24:99-100 Ap '15
Recent aspects of garden design. H. D. Eberlein. II Arch Rec 37:300-19 Ap '15

Gary, Indiana

Trade school idea at Gary. II Bldg Age 37:25-8 S '15

Gas

Effect of leaking illuminating gas on bituminous pavements. E. C. Jones. Am Gas Light J 102:25 Ja 11 '15
Effect of leaking illuminating gas on bituminous pavements. G. C. Warren. Eng & Contr 42:405 O 28 '14; Excerpts. Eng N 73:441 Mr 4 '15
Effects of gas light upon colored fabrics. Am Gas Light J 102:116 F 22 '15
Gas as a case-hardening agent. A. H. White and H. T. Wood. bibliog II Am Gas Light J 103:259-63, 266 O 25 '15
How producer gas is used for drying molds and cores and for heating ladles in English foundries. II Foundry 43:229-30 Je '15
Maximum contents of hydrocarbons in producer gas; abstract. F. Hoffmann. Am Soc M E J 37:503 O '15
Separation of the illuminants in mixed coal and water gas. G. A. Burrell and I. W. Robertson. Am Gas Light J 101:295+, N 9 '14; Same. J Ind & Eng Chem 7:17-21 Ja '15
See also Acetylene; Blast furnace gas; Coal-tar products; Coke oven gas; Gas and oil engines; Gas lighting; Gas manufacture and works; Gas power plants; Gas producers; Gases; Petroleum

Analysis**See Gas analysis****Cost**

Cost and price of gas in a small city. W. C. Butterworth. Am Gas Light J 102:180-3 Mr 22 '15
Is producer gas a competitor? J. Brandes. Am Gas Light J 103:42-3 Jl 19 '15

Ignition

Automatic and distance lighters for indoor lamps. C. W. Jordan. diags Illum Eng Soc 9:380-7 no 8 '14
Pilot flame ignition of incandescent gas lamps. C. W. Jordan. diags Am Gas Light J 103:214-15 O 4 '15
Report of committee on piping large buildings for gas; system of control diags Am Gas Inst Pro 9:pt 2, 1424-30 '14
See also Automobile engines—Ignition devices; Gas and oil engines—Ignition

Rates**See Gas rates****Standards**

Essentials of modern gas composition. W. Cranfield. Am Gas Light J 102:307-10 My 17 '15
Fixed calorific standard—a new use for gas coke. N. H. Humphrys. Am Gas Light J 102:73 F 1 '15
Formal order establishing 520 B. T. U. as Canadian standard. Am Gas Light J 103:164 S 13 '15
Gas testing ordinances: coming of calorimetry. J. Abady. II Am Gas Light J 101:369-71 D 14 '14
Operating experiences under a calorific standard; symposium. Am Gas Inst Pro 9:pt 1, 387-78 '14
Standards for gas and electric service in Illinois. Eng N 72:1148-9 D 10 '14
Standards for gas service. U S Bur Stand Circ 321:190 '15

Testing**See Gas testing****Gas, Natural**

Absorption of gasoline vapor in natural gas by fuming sulfuric acid. R. P. Anderson and C. J. Engelder. J Ind & Eng Chem 6:989-92 D '14
Analysis of natural gas and illuminating gas by fractional distillation at low temperatures and pressures. G. A. Burrell, F. M. Seibert

and I. W. Robertson. diags U S Bur Mines Tech Pa 1041:33 '15; Excerpts. Am Gas Light J 103:315 N 15 '15; Same. Met & Chem Eng 13:851 N 15 '15
Blast lamp for natural gas. H. C. Chapin. II J Ind & Eng Chem 7:46-7 Ja '15
Capillary concentration of gas and oil. C. W. Washburne. Am Inst Min E Bul 93:2365-78 S '14; Discussion. 100:831-46; 101:1203-4 Apr '15
Cementing a gas well in salt water. diag Concrete Cem 5:254 D '14
Composition of the natural gas used in twenty-five cities; with a discussion of the properties of natural gas. G. A. Burrell and G. G. Oberfell. U S Bur Mines Tech Pa 109:1-20 '15; Excerpt (Rare gases in natural gas). Sci Am S 80:235 O 9 '15; Excerpt (Physiological effect of natural gas). Sci Am S 80:303-4 N 6 '15
Condensation of gasoline from natural gas. G. A. Burrell, F. M. Seibert, and G. G. Oberfell. diags pls U S Bur Mines Bul 83:3-100 '15; Excerpts. Automobile 33:92 Jl 8 '15
Conditions of natural gas in the earth's strata. G. A. Burrell. J Ind & Eng Chem 7:222-4 Ap '15
Engineering problems arising in the transportation of natural gas. J. P. Fisher. Am Soc M E J 37:374-7 Jl '15
Gas and oil wells through coal seams; discussion. Am Inst Min E Bul 100:346-58 Ap '15
Gasoline engine run on natural gas. L. H. Morrison. Power 41:821 Je 15 '15
Gasoline from natural gas. F. E. Matthews. Power 42:677-8 N 16 '15
House heating with natural gas for fuel. F. R. Hutchinson. II Metal Work 34:9-12+ Jl 2 '15
Natural gas industry in the Appalachian region. Am Gas Light J 103:150 S 6 '15
Natural gas production in 1914. Am Gas Light J 103:230 O 11 '15
New competitor of acetylene. J. F. Springer. Mach 21:903 Jl '15
Physical laws of methane gas. P. F. Walker. Am Soc M E J 37:176-9 Mr '15
Possible substitute for acetylene in welding and cutting; by-product of natural-gas gasoline. J. F. Springer. Ry Age (Mech ed) 89:529-30 O '15
Probable oil and gas in Montana. J. P. Rowe. Eng & Min J 99:647-9 Ap 10 '15
Regulation of oil and gas wells in California. L. H. Bddy. Eng & Min J 100:383-4 S 4 '15
Role and fate of the connate water in oil and gas sands. R. H. Johnson. Am Inst Min E Bul 98:221-6 F '15; Discussion. 101:1157-62; 103:1449-59; 105:2057-60 My, Jl, S '15
Separation of the constituents in a natural gas from which gasoline is condensed. G. A. Burrell and F. M. Seibert. Am Chem Soc J 37:392-6 F '15
Variation in composition of natural gas from different sands in the same field. G. A. Burrell and G. G. Oberfell. J Ind & Eng Chem 7:419 My '15

Gas, Oil

Improved Jones oil gas process at the Potrero gas works, San Francisco. E. C. Jones and L. B. Jones. II diags Am Gas Light J 103:23, 26-7 Jl 12 '15
Time factor in making oil gas. M. C. Whitaker and C. M. Alexander. diags J Ind & Eng Chem 7:484-95 Je '15

Bibliography

Bibliography of the chemistry of gas manufacture. W. F. Rittman and M. C. Whitaker. U S Bur Mines Tech Pa 120:12-14 '15

Gas, Water

Automatic operation of a water gas set. C. F. Zeek. diags Am Gas Light J 102:895-6 Je 21 '15
Continuous production of water gas. diags J Ind & Eng Chem 7:541 Je '15
Examination of a condensate from carburetted water gas. E. T. Sterne. J Ind & Eng Chem 7:398-9 O '15; Same. Am Gas Light J 103:339 N 29 '15

Gas, Water—Continued

- Methods and facilities for specifying and testing blowers also measuring air and steam supply to the water gas generators. J. M. Spitzglass. *Am Gas Inst Pro* 9:pt 1, 615-66; Discussion. 9:pt 1, 666-77 '14
- Oil tar separation, recovery and disposal. R. El. Wyant. *Am Gas Inst Pro* 9:pt 1, 313-19; Discussion. 819-89 '14
- Physical constants of gas oils and derived tars. W. F. Rittman and G. Egloff. *J Ind & Eng Chem* 7:481-4 Je '15
- Possible economies from the use of exhaust steam in a water gas plant. S. A. Reinhard and C. A. Schnerr. *Il plan Am Gas Light J* 102:325-30 Ap 12 '15
- Pure water gas production. *diag Am Gas Light J* 102:124-5 F 23 '15
- Timer for water gas generator. *Il Am Gas Light J* 102:155-6 Mr 8 '15
- Water gas machine results. *Am Gas Light J* 103:131-2 Ag 30 '15

Bibliography

- Bibliography of the chemistry of gas manufacture. W. F. Rittman and M. C. Whitaker. *U S Bur Mines Tech Pa* 120:9-11 '15

Gas advertising. See Gas industry—Advertising

Gas analysis

- Analysis of natural gas and illuminating gas by fractional distillation at low temperatures and pressures. G. A. Burrell, F. M. Seibert and I. W. Robertson. *diags U S Bur Mines Tech Pa* 104:1-38 '15; Excerpts. *Am Gas Light J* 103:315 N 15 '15; Same. *Met & Chem Eng* 13:851 N 15 '15
- Apparatus for the determination of sulfur in gas. E. R. Weaver and J. D. Edwards. *diag J Ind & Eng Chem* 7:620-1 Jl '15; Same. *Am Gas Light J* 103:108 Ag 16 '15
- Determination of benzol in gas mixtures. G. A. Burrell and I. W. Robertson. *diag J Ind & Eng Chem* 7:669-70 Ag '15; Same. *Am Gas Light J* 103:132-3 Ag 30 '15
- Determination of gases dissolved in waters and effluents. A. A. Swanson and G. A. Hulett. *diags Am Chem Soc J* 37:2490-500 N '15
- Determination of hydrogen in gas mixtures by means of colloidal palladium. G. A. Burrell and G. G. Oberfell. *J Ind & Eng Chem* 6:992-4 D '14
- Determining the benzol in gas. A. Krieger. *diag Am Gas Light J* 103:390-300 My 10 '15
- Equilibrium between carbon oxysulfide, carbon monoxide and sulfur. G. N. Lewis and W. N. Lacey. *diag Am Chem Soc J* 37:1976-83 S '15
- Method for the determination of hydrogen sulphide in gas. A. B. Way. *Am Gas Inst Pro* 9:pt 1, 164-7 '14; Same cond. *Am Gas Light J* 101:364 D 7 '14; Discussion. *Am Gas Inst Pro* 9:pt 1, 167-78 '14
- Rapid method of fractionating gases at low temperatures. G. A. Burrell and I. W. Robertson. *J Ind & Eng Chem* 7:310-11 Mr '15
- Reagents for use in gas analysis; alkaline pyrogallol. R. P. Anderson. *diag J Ind & Eng Chem* 7:587-98 Jl '15
- Report on the gas chemist's handbook. W. H. Fulweiler. *Am Gas Inst Pro* 9:pt 1, 141-54; Discussion. 9:pt 1, 154-63 '14
- Separation of gases by fractional distillation in a vacuum at low temperatures. G. A. Burrell and I. W. Robertson. *J Ind & Eng Chem* 7:209-10 Mr '15
- Separation of the illuminants in mixed coal and water gas. G. A. Burrell and I. W. Robertson. *diag Am Gas Inst Pro* 9:pt 1, 219-32 '14; Same cond. *Am Gas Light J* 101:295-4 N 9 '14; Same cond. *J Ind & Eng Chem* 7:17-21 Ja '15; Discussion. *Am Gas Inst Pro* 9:pt 1, 232-4 '14
- Specific absorption of reagents for gas analysis. R. P. Anderson. *J Ind & Eng Chem* 7:587 Jl '15
- Gas and oil engines**
- Blackstone oil engine. *Il plan (supp) Engineer* 119:402-4 Ap 23 '15
- Charging of two-cycle internal combustion engines; abstract. B. Hopkinson. *diags Am Soc M E J* 37:126-7 F '15
- Convertible combustion engines. A. E. L. Chorlton. *diag Engineer* 119:301-3 F 26 '15; Same cond. *Power* 41:556-7 Ap 20 '15; Abstract. *Am Soc M E J* 37:239-41 Ap '15
- Distribution of heat in the cylinder of a gas engine. A. H. Gibson and W. J. Walker. *diags Engineer* 119:550-1 Je 4 '15; Same cond. *Power* 41:824-5 Je 15 '15; Abstract. *Am Soc M E J* 37:417-18 Jl '15
- Dunn heavy oil engine. *Il Concrete Cem* 7:159-60 O '15
- Eight-cylinder gasoline engine for railway traction. H. G. Chatain. *Il Power* 41:214-15 F 9 '15
- Farm tractors and their motors. P. S. Rose. *Horseless Age* 35:799-800 Je 16 '15; Abstract. *Eng M* 49:750-2 Ag '15
- Forty years' advance in internal combustion engines. *Il Power* 41:376-8 Mr 16 '15
- Gas blowing engines at the Steelton plant of the Pennsylvania steel company. *Il Met & Chem Eng* 13:516-19 Ag '15
- Gas blowing engines for the Pennsylvania steel co. *Il Iron Age* 96:12-14 Jl 1 '15
- Gas blowing engines for the Pennsylvania steel co. *Il Iron Tr R* 57:38-5+ Jl 1 '15
- Gas-engine tendencies. A. E. Ward. *diags Power* 41:186-90 F 9 '15; Discussion. *J: E. Wentworth*. 41:383-4 Mr 16 '15
- Gas engines replace a steam turbine power plant. C. L. Follmer. *Il plan Power* 42:870-4 N 16 '15
- Handy gasoline engine formulas. W. F. Schaphorst. *Iron Age* 96:414 Ag 19 '15
- Heater utilizing gas engine exhaust. *diag Iron Age* 96:413 Ag 18 '15; Same. *Metal Work* 84:317 S 3 '15
- Heavy-duty kerosene engine and generator. *Il diag Elec W* 66:548-9 S 4 '15
- Heavy oil engine, its present status and future development. A. H. Goldingham. *Il diags Am Soc M E J* 37:628-36 N 15 '15; Excerpts. *Iron Age* 96:1313-15 D 2 '15
- History of the large gas engine. H. Hubert. *Iron Tr R* 56:1011-16+ My 20 '15
- History of the twelve-cylinder motor. E. W. Walford. *Il Automobile* 32:500-1 Mr 18 '15
- Kolbulb oil engine. E. Lundgren. *diags Power* 41:79-81 Ja 19 '15
- How to select your prime mover. G. Fisk. *Iron Tr R* 57:569-72+ S 23 '15
- Immediate gas engine business for gas companies. E. W. Edmund. *Il diag Am Gas Light J* 103:275-7 My 3 '15
- Installation of a gas engine. T. L. Hobbs. *Mach* 21:204-5 N '14; Same. *Sci Am S* 79:55 Ja 23 '15
- Internal-combustion engine dimensions. H. L. Watson. *Power* 41:672-4 My 18 '15
- Internal combustion engines from a commercial standpoint. J. G. Walthew. *Engineer* 113:539 D 4 '14
- Internal-combustion vs. the steam engine. *Power* 42:513-14 O 12 '15
- Investigation of a gas driven air compressor plant at the mine Consolidation. *Am Soc M E J* 37:112-13 F '15
- Junkers oil engine. F. E. Junge. *diags Eng M* 48:689-93 F '15
- Large blast furnace gas engines. H. Hubert. *Il diags Engineer* 110:511-14, 524-5 My 21-28 '15
- Latest Campbell oil engine. *Il Engineer* 119:44 Ja 8 '15
- Lauson heavy-duty kerosene engine. *diags Power* 41:116-17 Ja 26 '15
- Locomotive driven by suction producer gas; abstract. G. Wosden. *diags Am Soc M E J* 37:713-15 D '15
- Low grade fuel oil engine for general service. *diag Eng & Contr* 42:371 O 14 '14
- New type of internal combustion engine; abstract. H. F. Pullagar. *diags Am Soc M E J* 37:127-8 F '15
- Nordberg high compression oil engine. *Il Ry Age (Mech ed)* 89:487 S '15; Same. *Elec W* 66:374 Ag 14 '15; Same. *Iron Age* 96:141 Jl 15 '15
- Oil engine for off-peak load. L. H. Morris. *Power* 41:351-2 Mr 9 '15
- Oil ploughing engine; plan. *Engineer* 120:36 Jl 9 '15
- Operating an outlaw engine. F. W. Robinson. *diag Power* 42:625-6 N 2 '15

Gas and oil engines—Continued

- Panama-Pacific exposition. F. R. Low. *Il* diags Power 42:261-6, 290-3, 341-2, 374-7 Ag 24-S 14 '15
- Parallel operation of alternating current generators driven by internal combustion engines; factors affecting engine design. H. C. Lehn. *Gen Elec R* 13:174-8 Mr '15
- Petrol rail coach engine. diags Engineer 119: 426-7 Ap 30 '15
- Present status of prime movers. H. G. Stott, R. J. S. Pigott and W. S. Gorsuch. *Am Inst E E Pro* 33:952-75 Je '14; Discussion. 34:85-102 Ja '15
- Processes of combustion in a hot bulb engine; abstract. E. Weisshaar. *Am Soc M E J* 37: 650-1 N '15
- Royal agricultural show at Nottingham. *Il* diags Engineer 120:58-9 J1 16 '15
- Service of a fuel oil engine in a railway pumping station. *Il Ry Age* 58:144-5 Je 13 '15
- Small electric generating stations; applicability of oil engines for plants in small towns. G. C. Shaad. *Il plan Elec W* 65:923-5 Ap 10 '15
- Small self-contained generating plant. *Il Elec W* 66:431 Ag 21 '15
- Stop for gasoline engine. S. A. Standley. *plan Power* 40:854 D 15 '14
- Uto two-stroke cycle engine; abstract. P. Ostertag. *diag Am Soc M E J* 37:343-4 Je '15
- Venn-Severin two-stroke-cycle oil engine. *Il Elec W* 66:939 O 23 '15
- When the gas engine will not start. E. N. Percy. *Power* 41:299-300 Mr 2 '15
- See also* Aeroplane motors; Automobile engines; Diesel engines; Gas producers; Gas tractors; Heat engines; Locomotives; Gas and oil

Accidents

- Gaseous explosions. D. Clerk. *Sci Am S* 79: 288 My 1 '15
- Peculiar gas-engine accident. *Il Power* 40:935; 41:203-4 D 29 '14, F 9 '15

Cooling

- Gas-engine cooling water. G. A. Field. *diag Power* 41:433 Mr 30 '15
- Injection of water in internal combustion engines. P. H. Berggreen. *Sibley J* 29:134 Ja '15
- Recovery of heat losses in internal combustion engines; abstract. J. B. Merriam. *diag Am Soc M E J* 37:295-6 My '15
- See also* Automobile engines—Cooling

Cost of operation

- Operating costs for oil-engine installations. *Elec W* 66:805-7 O 9 '15

Fuel

- Analysis and valuation of motor fuels—14 methods for examining them; from German data. *Automobile* 33:202-5, 247-9+ J1 23-Ag 5 '15
- Combustion of benzole in internal combustion engines. E. Terres. *Am Soc M E J* 37:46-8 Ja '15
- Gas engine needle valve settings. B. R. Ware. *Int Marine Eng* 20:226-7 My '15
- Gas operated internal combustion engines; relative cost of operation compared with liquid fuel when used for power. H. W. Edmund. *Metal Work* 84:141-2 J1 30 '15
- Initial temperatures of combustible gases and liquids; abstract. O. Binder. *Am Soc M E J* 37:554 S '15
- Liquid fuels for internal combustion engines. *Engineer* 119:408-9 Ap 23 '15

Ignition

- Effects of varying mixture and ignition timing. V. R. Gage. *Power* 42:720-2 N 23 '15
- Electric ignition devices for gas engines. *Il Sci Am S* 78:357 D 5 '14

Lubrication

- Motor cylinder lubrication; abstract. G. S. Bryan. *Am Soc M E J* 37:293-4 My '15

Manufacture

- Allowances for gas engine piston fits: abstracts. E. W. Weaver. *Mach* 21:491 F '15; Horseless *Age* 35:110-11 Ja 20 '15; *Power* 41: 245 F 16 '15
- How Stout institute students cast a gasoline engine. F. F. Hillix. *Il Foundry* 43:99-102 Mr '15

Testing

- Operating and test data for a fuel-oil engine and generator. R. B. White. *Il diag Elec W* 65:1688-9 Je 26 '15
- Test of a 18-hp. Petter oil engine. C. S. Salfeld. *Power* 41:405 Mr 23 '15
- Vertical tandem gas engine. *Il diags Engineer* 120:208 Ag 27 '15

Valves

- Gas engine needle valve settings. B. R. Ware. *Int Marine Eng* 20:226-7 My '15

Gas and oil engines, Marine

- Common troubles with the marine gas engine and suggestions for determining and remedying. J. B. Sadler. *Int Marine Eng* 20:413-15 S '15
- Installation of 120 horsepower Bolinder oil engine in pilot schooner Gracie S. *Il plans Int Marine Eng* 20:158-60 Ap '15
- Largest commercial gasoline engine ever built. *Il Sci Am* 112:588 Je 12 '15
- Marine oil engines for commercial work. *Il Int Marine Eng* 20:495-7 N '15
- Oil and suction producer gas engines for ship propulsion; abstract. *Am Soc M E J* 37:602 O '15
- Present position of the marine distillate (paraffin) engine. C. J. Belden. *Int Marine Eng* 20:225-6 My '15
- Thermodynamics of the marine oil engine. J. F. Wentworth. *Power* 41:145-8 Ja 26 '15

Gas appliances

- Domestic fuel appliances from the consumer's point of view. *Am Gas Light J* 102:70-1, 74-6 F 1 '15
- Industrial appliance business; with discussion. W. H. Bradley. *Am Gas Light J* 102:210-12 Ap 5 '15
- Industrial fuel development. S. T. Willson. *Il Am Gas Light J* 103:82-4 Ag 9 '15
- Industrial gas appliance for the home, school and factory. G. L. Powers. *Am Gas Light J* 103:93 Ag 9 '15
- Industrial gas problems; general instructions—consumption on typical installations—candy making—coffee roasting—packing houses. F. S. Dewey. *Am Gas Light J* 102: 391, 394-5 Je 21 '15
- Industrial showrooms of the Gas Light and coke company. Goswell Road, E. C. *Il Am Gas Light J* 103:101 Ag 16 '15
- Industrial uses of gas at the Panama-Pacific international exposition. J. B. Redd. *Am Gas Light J* 103:156-7 S 6 '15
- Refrigeration by gas. H. M. Soper. *Am Gas Light J* 102:412-13 Je 28 '15
- Relations between gas companies and dealers. *Am Gas Light J* 103:6-7, 10-11 J1 5 '15
- Report of committee on piping large buildings for gas; fuel illustrations. *Am Gas Inst Pro* 9:pt 2, 1440-86 '14
- Report of the committee on the utilization of gas appliances. *Il diags Am Gas Inst Pro* 9:pt 2, 1511-41; Discussion. 1541-55 '14
- Typical industrial appliances. *Il Am Gas Light J* 103:85-7, 90-3 Ag 9 '15
- What is being done by manufacturers of appliances to encourage the use of gas. S. Grady. *Am Gas Light J* 102:87 F 8 '15

See also* Gas cooking*Gas as fuel**

- Accident to a boiler fired with producer gas. *Am Soc M E J* 37:116 F '15
- Comparison of the economy of powdered coal, oil and water gas for heating furnaces. C. F. Herington. *Eng N* 72:1156-8 D 10 '14
- Design of surface combustion appliances. C. E. Lucke. *diags Sch Mines Q* 36:95-122, 233-45 Ja-Apr '15
- English continuous billet furnace. *Il diags Iron Tr R* 57:841-2 O 23 '15
- English gas-fired melting furnaces. *diag Am Gas Light J* 102:140 Mr 1 '15

Gas as fuel—Continued

- Fuel values of coal, gas and oil; operators of plants in Oklahoma compare costs on evaporation-unit basis. *Elec W* 65:1470 *Je* 5 '15
- Gas and munitions of war. *Illum Engr* 8:364 *Ag* '15
- Gas brazing furnace. *diags Ry Age* (*Mech ed*) 89:591-2 *N* '15
- Gas fired boilers. *Herr Birkholz. Am Gas Light J* 103:99-101 *F* 15 '15
- Gas furnace for heating soldering irons. *R. H. Parsons. plan Elec Ry J* 46:24 *J* 3 '15
- Gas operated internal combustion engines; relative cost of operation compared with liquid fuel when used for power. *H. W. Edmund. Metal Work* 84:141-2 *J* 30 '15
- Gas vs. electrically heated ovens. *G. H. Trout. Iron Tr R* 57:526+ *S* 16 '15
- Heat treatment of iron and steel in a neutral atmosphere. *A. H. White and H. T. Hood. diag Am Gas Light J* 103:310-11, 314-15 *N* 15 '15
- House heating with natural gas for fuel. *F. R. Hutchinson. II Metal Work* 84:9-12+ *J* 2 '15
- Immediate gas engine business for gas companies. *H. W. Edmund. II diag Am Gas Light J* 103:275-7 *My* 3 '15
- Industrial fuel. *F. W. Frueauff. Am Gas Light J* 103:267 *O* 25 '15
- Industrial fuel development. *S. T. Willson. II Am Gas Light J* 103:83-4 *Ag* 9 '15
- Industrial gas. *J. C. Shepard. II Am Gas Light J* 103:194-7 *Mr* 29 '15
- Industrial gas problems. *F. S. Dewey. Am Gas Light J* 102:391, 394-5 *Je* 21 '15
- Industrial uses of gas. *H. M. Thornton. II Am Gas Light J* 103:17-22 *J* 12 '15
- Modern foundry pig-iron mixer; operating and chemical results with blast-furnace and coke-oven gases; abstract. *O. Simmersbach. Iron Age* 96:812-13 *O* 7 '15
- New ingot heating furnace. *II diags Engineer* 120:162-4 *Ag* 13 '15
- Power with by-product recovery. *T. R. Wolaston. Engineer* 119:326-7 *Ap* 2 '15; *Same. Sci Am S* 80:42-3 *J* 17 '15
- Producer gas for heat treating. *II diags Iron Tr R* 57:521-3 *S* 16 '15
- Report of industrial fuel committee, National commercial gas association. *H. O. Loebell. Am Gas Light J* 102:3-4 *Ja* 4 '15
- Tests of natural gas-fired brass furnaces. *F. L. Wolf and R. B. Burr. diags Foundry* 48:153-7 *Ap* '15
- Typical industrial appliances. *II Am Gas Light J* 103:85-7, 90-3 *Ag* 9 '15
- See also* Blast furnace gas; Coke oven gas; Coke ovens; Combustion, Surface; Gas burners; Gas cooking; Gas heating; Gas stoves
- Gas associations**
- See also* National commercial gas association
- Gas burners**
- Burning blast furnace gas; Bradshaw-Huonsener combustion arrangement. *diags Iron Age* 95:812-13 *Mr* 18 '15
- Efficiency relation existing between various argand and open flame test burners. *F. H. Gilpin. diags Am Gas Inst Pro* 9:pt 1, 379-401; *Discussion. 401-4* '14
- Gas burners in 2750-hp. office-building boiler plant. *II diag Power* 42:79-80 *J* 20 '15
- Gas lighting development. *T. Owens. II Am Gas Light J* 103:193-7 *S* 27 '15
- Hot-blast stove gas burners. *II diags Iron Age* 96:356-7 *Ag* 12 '15
- Simple, durable, electrically operated gas-valve. *Z. Ostenberg. II J Ind & Eng Chem* 7: 873 *O* '15; *Same. Am Gas Light J* 103:279 *N* 1 '15
- Simple gas burner for small laboratory furnaces. *D. L. Randall. diag J Ind & Eng Chem* 7:873 *O* '15
- Utilization of blast furnace gas. *A. N. Diehl. Iron Tr R* 57:946-8, 993-7, 1040-2+ *N* 11-25 '15; *Abstract. Iron Tr R* 57:853-6 *O* 28 '15; *Abstract, with discussion. Iron Age* 96:988-90 *O* 28 '15
- See also* Acetylene burners; Blast lamps

Gas cleaning

- Gas from blast furnaces, its cleaning and utilization. *J. E. Johnson, Jr. diags Met & Chem Eng* 12:685-92, 760-9 *N-D* '14; *Same. Sci Am S* 79:93-5, 110-12, 126-7, 142-3 *F* 6-27 '15
- Gas-washing apparatus with enclosed filter. *E. R. Weaver and J. D. Edwards. diags J Ind & Eng Chem* 7:534-5 *Je* '15
- Recent developments in the Doherty washer cooler as a gas condenser. *R. B. Rowley. Am Gas Light J* 103:231+ *O* 11 '15

See also Gas purification**Gas companies**

- Continuous meter reading and discount system in Fond du Lac. *F. G. Maxwell. Am Gas Light J* 103:205 *Mr* 29 '15
- Free maintenance of all gas lamps by the gas companies. *J. F. Conroy. Am Gas Light J* 102:119, 122-4 *F* 22 '15
- House maintenance of gas lighting. *W. O. Weekes. Am Gas Light J* 103:203-5 *S* 27 '15
- House maintenance service. *A. Hewitt. Am Gas Light J* 102:39, 42-3 *Ja* 18 '15
- How can gas and electric companies under one management render the best light service? *A. B. Spaulding and N. H. Potter. Am Gas Light J* 103:218-19 *O* 4 '15
- Is the sale of gas-electric fixtures by gas companies desirable? *R. F. Pierce. Am Gas Light J* 102:69-70 *F* 1 '15
- Maintenance of house burners. *H. C. Crafts. Am Gas Light J* 102:247, 250-1 *Ap* 13 '15
- Orders and complaints. *W. J. Clark. Am Gas Light J* 103:331-2 *N* 23 '15
- Relations between gas companies and dealers. *Am Gas Light J* 103:6-7, 10-11 *J* 5 '15
- Report of N. C. G. A. committee on outdoor gas lighting. *II Am Gas Light J* 102:117-19 *F* 22 '15

See also Gas industry; Gas lighting**Accounting**

- Accounting. *P. S. Young. Am Gas Light J* 103: 236 *O* 11 '15
- Analyses of statements—units of cost. *A. P. Post. Am Gas Light J* 101:385-8 *D* 21 '14
- Routine of billing and receiving department. *W. P. Baird. Am Gas Light J* 103:340-3, 346-7 *N* 29 '15

Advertising*See* Gas industry—Advertising**Employees**

- Compensation of meter readers. *H. P. Schaper. Am Gas Inst Pro* 9:pt 2, 1683-7 '14; *Same. Am Gas Light J* 101:333 *N* 23 '14; *Same. Eng & Contr* 42:558-9 *D* 16 '14; *Discussion. Am Gas Inst Pro* 9:pt 2, 1687-1707 '14
- Complaint man. *E. J. DeMarsh. Am Gas Light J* 102:401 *Je* 28 '15
- How the shops can assist the commercial department in promoting friendly relations with the public. *H. E. Turner. Am Gas Light J* 102:380-1 *Je* 14 '15
- Improvement of distribution employees. *C. E. Reinicker. II Am Gas Inst Pro* 9:pt 2, 1243-1302 '14; *Same cond. Am Gas Light J* 102: 28-9 *Ja* 18 '15; *Discussion. Am Gas Inst Pro* 9:pt 2, 1302-10 '14
- National commercial gas association courses, and compulsory education. *L. Galloway. Am Gas Light J* 103:102-3; *Discussion. 103: 103, 106-7* *Ag* 16 '15

Public relations

- Address at the Minneapolis convention. *N. C. G. A. T. N. McCarter. Am Gas Light J* 102: 115-16 *F* 22 '15
- Gas company from the consumer's point of view. *J. H. Ingwersen. Am Gas Light J* 102: 411-12 *Je* 28 '15
- Relations with customers: discussion on the report of the N. C. G. A. committee. *Am Gas Light J* 102:149-51 *Mr* 8 '15

Rates*See* Gas rates**Regulation**

- Northampton, Mass., rate case. *Am Gas Light J* 102:154-5 *Mr* 8 '15
- Rented gas ranges. *Am Gas Light J* 102:326-7 *My* 24 '15

Gas companies—Regulation—Continued

Standards for gas service. U S Bur Stand Circ 32:1-190 '15

Summary of commission regulations governing gas supply; table. J. B. Klumpp. Am Gas Light J 103:75 Ag 2 '15

See also Gas—Standards

Gas congress, international. See International gas congress, San Francisco, 1915

Gas cooking

Domestic fuel appliances from the consumer's point of view. Am Gas Light J 103:70-1, 74-6 F 1 '15

Gas kitchen equipment of the Biltmore hotel. C. F. Herington. II plan Am Gas Light J 102:170-2 Mr 15 '15

How to secure all-gas kitchens in old houses. H. K. Dodson. Am Gas Light J 101:406-7 D 28 '14

Gas distribution

Astoria tunnel under the East river for gas distribution in New York city. J. V. Davies. II map Am Gas Light J 103:225-30, 244-7+ O 11-18 '15

Great gas tunnel under the East river. J. F. Springer. II Sci Am 118:380-1 O 30 '15

Installation and maintenance of services. R. B. Duncan. II diag Am Gas Inst Pro 9:pt 2, 1052-1161; Discussion. 1161-32 '14

Motor-driven, high-pressure gas pumping installation. J. S. Haug. Am Gas Light J 103:315-18 N 15 '15

Piping houses for gas lighting. H. R. Sterrett. Am Gas Light J 103:37, 90 F 9 '15; Same. Illum Eng Soc 10:295-302 no 4 '15

Present practice of gas distribution by British undertakings. W. Hole. II diag Am Gas Light J 103:305-9, 323-7 N 15-22 '15

Report of committee on distribution, Iowa district gas association. Am Gas Light J 102:403 Je 28 '15

Report of committee on piping large buildings for gas; piping plans. 4 fold charts Am Gas Inst Pro 9:pt 2, 1486a '14

Sizes of pipes for high pressure gas mains. J. M. Spitzglass. II diag Am Gas Light J 102:49-52 Ja 25 '15

Welding of high pressure mains. J. D. Shattuck. II diag Am Gas Inst Pro 9:pt 2, 945-1011 '14; Same abr. Am Gas Light J 102:54-5, 58-60, 66-9 Ja 25-F 1 '15; Discussion. Am Gas Inst Pro 9:pt 2, 1011-52 '14

See also Gas pipe lines; Gas pipes

Gas-electric fixtures. See Gas fixtures

Gas electric locomotives. See Electric locomotives

Gas engineering

Address before the Illinois gas association. L. H. Johnson. Am Gas Light J 102:193-4 Mr 29 '15

Suggested extension of the Dewey decimal system of classification to gas engineering. D. S. Knauss. Am Gas Inst Pro 9:pt 2, 1746-50; Discussion. 1750-7 '14

See also Gas distribution; Gas heating; Gas lighting; Gas power plants; Gas safety code

Gas engineers, New England association of. See New England association of gas engineers

Gas engines. See Gas and oil engines

Gas explosions. See Explosions

Gas-filled lamps. See Electric lamps, Tungsten

Gas fitting

Educating fitters. Am Gas Light J 103:100 Ag 16 '15

Physical installation of gas arcs. C. A. Luther. II Am Gas Inst Pro 9:pt 1, 876-91; Discussion. 892-902 '14

Proper specifications for and inspection of interior gas piping. A. B. Turner. Am Gas Inst Pro 9:pt 2, 1311-27 '14; Same (Standardizing gas piping specifications) Metal Work 82:764-7 D 11 '14; Discussion. Am Gas Inst Pro 9:pt 2, 1327-37 '14

See also Gas meters

Gas fixtures

Gas lighting development. T. Owens. II Am Gas Light J 103:193-7 S 27 '15

Is the sale of gas-electric fixtures by gas companies desirable? R. F. Pierce. Am Gas Light J 102:69-70 F 1 '15

Report of committee on piping large buildings for gas; fixture illustrations. Am Gas Inst Pro 9:pt 2, 1374-1423 '14

See also Gas lamps

Gas flow

Gas volume and dust concentration determination in connection with the Cottrell process. W. N. Drew. diag Am Soc M E J 37: 678-8 D '15

German apparatus for measuring pressure and velocity of gases; abstract. E. Stach. diag Am Soc M E J 37:715-16 D '15

Note on the modified venturi formula for flow of gases or vapors. G. B. Upton. Sibley J 29:90-5 D '14

See also Gas measurement

Gas heaters

Fire-place heater design competition. II Am Gas Light J 103:124 Ag 23 '15

Gas heater for commutators. R. H. Parsons. diag Elec Ry J 46:280-1 Ag 14 '15

Heater utilizing gas engine exhaust. diag Iron Age 96:413 Ag 19 '15; Same. Metal Work 84: 317 S 3 '15; Same cond. Ind Eng 15:89 S '15

Heating by means of gas burning appliances. G. S. Barrows. II Dom Eng 70:171-4, 201-3 F 6-13 '15; Same. Metal Work 83:765-8 My 28 '15

Report of N. C. G. A. committee on heating, ventilation and refrigeration. G. S. Barrows. Am Gas Light J 101:410-13 D 28 '14

See also Gas water heaters

Gas heating

How radiant heat from gas radiators is determined. plan Heat & Ven 12:24-8 My '15

Progress in gas heating science; with discussion. O. J. Kuenhold. Am Soc Heat & V E 20:299-319 '14

Report of N. C. G. A. committee on heating, ventilation and refrigeration. G. S. Barrows. Am Gas Light J 101:410-13 D 28 '14

Three methods of measuring radiant heat from gas fires. W. R. Twigg. II diag Heat & Ven 12:33-6 S '15

See also Gas heaters

Gas holders. See Gas holders

Gas ignition. See Gas—Ignition

Gas industry

Address to the National commercial gas association at Minneapolis. Am Gas Light J 101: 353-5 D 7 '14

Address to the Pennsylvania gas association. L. R. Dutton. Am Gas Light J 102:273-5 My 3 '15

Address to the tenth annual meeting, Natural gas association of America. J. T. Lynn. Am Gas Light J 102:353-5 Je 7 '15

Aluminum in the gas industry. J Ind & Eng Chem 7:255-6 Mr '15

Domestic uses of gas. J. H. Gaylord. Am Gas Light J 102:298-9 My 10 '15

Gas industry and the war. N. H. Humphrys. Am Gas Light J 101:409-10 D 28 '14

Gas progress in the United States. R. C. Dawes. J Ind & Eng Chem 7:351-2 Ap '15

Present commercial gas situation in Texas. F. M. Lege, jr. Am Gas Light J 103:76-7 Ag 2 '15

Present practice in the sale of gas in the United Kingdom. F. W. Goodenough. Illum Engr 8:458-9 N '15

Report of industrial fuel committee, National commercial gas association. H. O. Loebell. Am Gas Light J 102:3-4 Ja 4 '15

Report of the committee on new business, Iowa district gas association. Am Gas Light J 103:133 Ag 30 '15

Report of the committee on piping large buildings for gas. II Am Gas Inst Pro 9:pt 2, 1335-1489; Discussion. 1490-1511 '14

Three ways of spending money to make money in the gas business. H. B. Maynard; H. C. Blackwell; G. W. Clabaugh. Am Gas Light J 103:34-5 J 19 '15

See also Gas appliances; Gas companies; Gas lighting; Gas power plants; Gas safety code

Gas Industry—Continued**Advertising**

- Correcting misleading statements. *Am Gas Light J* 103:36-7 J1 19 '15
 Direct advertising in the gas business. A. R. Fernald. *Am Gas Light J* 103:198-9+ Mr 29 '15
 Report of committee on publicity, National commercial gas association. *Am Gas Light J* 101:380-1 D 14 '14
 Value of window display. *Am Gas Light J* 103:52-4 J1 26 '15

Exhibitions

- Exposition awards. *Am Gas Light J* 103:109 Ag 18 '15
 Gas show at Washington. diags *Am Gas Light J* 103:171-2 S 13 '15

Statistics

- Address to the Southern gas association. S. E. DeFrese. *Am Gas Light J* 102:385-7 Je 21 '15

Gas lamps

- Construction of the radio-X lamp. *Il Am Gas Light J* 103:118 Ag 23 '15
 Gas and oil lamps and appurtenances; committee report. *Illum Eng Soc* 10:517-20 no 7 '15; Same. *Illum Engr* 8:409-11 O '15; Same. *Am Gas Light J* 103:273 N 1 '15
 Gas lamps and appurtenances. *Illum Engr* 7:511-13 N '14
 Gas street lighting development. F. R. Hutchinson. *Il Am Gas Light J* 102:856-8 Je 7 '15
 New radio-X lamp. *Il Am Gas Light J* 103:60 J1 26 '15
 Photometry of incandescent lamps. J. W. Roper. diags *Am Gas Light J* 102:178-4 Mr 22 '15
 Physical installation of gas arcs. C. A. Luther. *Il Am Gas Inst Pro* 9:pt 1, 876-91; Discussion. 892-902 '14
 Pilot flame ignition of incandescent gas lamps. C. W. Jordan. diags *Am Gas Light J* 103:214-15 O 4 '15

See also Gas fixtures; Gas lighting; Gas mantles

Gas laws. See Gas—Standards**Gas lighting**

- Coal gas candle power. L. J. Willen. *Am Gas Light J* 102:219-20 Ap 5 '15; Same. *Metal Work* 83:537-8 Ap 9 '15
 Converting night into day; what the inventor has done for oil, gas, and electricity in illumination. *Il Sci Am* 112:535-6 Je 5 '15
 Domestic lighting. J. D. Shattuck. *Am Gas Light J* 103:250-1 O 18 '15
 Examples of modern factory lighting by gas. *Il Illum Engr* 8:339-42 Ag '15
 Factory lighting by high pressure gas. A. E. Broadberry. *Il Illum Engr* 8:199-202 My '15
 Future of gas lighting. E. D. Brewer. *Am Gas Light J* 102:402 Je 28 '15
 Gas lighting at the Panama-Pacific international exposition. C. B. Babcock. *Il Am Gas Light J* 102:234-5 Ap 12 '15
 Good lighting gives prestige to the product. H. T. Owens. *Il Am Gas Light J* 102:209-10 Ap 5 '15
 House maintenance of gas lighting. W. O. Weekes. *Am Gas Light J* 103:203-5 S 27 '15
 House maintenance service. A. Hewitt. *Am Gas Light J* 102:39, 42-3 Ja 18 '15
 Lighting week—a successful gas show—Jersey City, N. J. H. T. Owens. *Il Am Gas Light J* 103:252-3 O 18 '15
 Office and store lighting by gas. T. Scofield and O. H. Fogg. *Am Gas Light J* 103:289-300 N 8 '15
 Piping houses for gas lighting. H. R. Sterrett. *Am Gas Light J* 102:87, 90 F 8 '15; Same. *Illum Eng Soc* 10:290-302 no 4 '15
 Popular talk on semi-indirect lighting. R. F. Pierce. *Il diags Am Gas Light J* 102:369-72 Je 14 '15
 Recent advances in indoor gas lighting. C. W. Jordan. *Il diags Illum Eng Soc* 9:873-94 no 8 '14
 Report of N. C. G. A. committee on indoor lighting. *Il Am Gas Light J* 102:82-7 F 8 '15
 Report of N. C. G. A. committee on outdoor gas lighting. *Il Am Gas Light J* 102:117-19 F 22 '15

Residence lighting with special reference to semi-indirect illumination. R. F. Pierce. *Am Gas Light J* 102:322-3 My 24 '15
 Two up-to-date high-pressure gas installations. *Il Illum Engr* 7:574-5 D '14

See also Gas; Gas companies; Gas fixtures; Gas lamps; Gas mantles; Gas meters

Cost

- Comparative costs of gas and electricity for illuminating purposes. B. K. Cash. *Am Gas Light J* 103:167+ Mr 15 '15
 Gas and electric street lights; comparison of cost and efficiency. *Il Munic Eng* 49:96-8 S '15
 Holyoke gas and electricity. *Munic J* 38:258 F 25 '15
 Report of committee on piping large buildings for gas; economical comparison of gas and electric lighting operating indoors. *Am Gas Inst Pro* 9:pt 2, 1431-9 '14

Ignition**See Gas—Ignition****Gas lighting, incandescent**

- Developments in incandescent gas lighting; with discussion. R. F. Pierce. *Il Illum Eng Soc* 9:961-73 no 9 '14

Gas lighting week

- National gas lighting week. Sept. 27 to Oct. 2 1915. *Il Am Gas Light J* 103:145-8 S 6 '15

Gas mantles

- Chemistry of the incandescent gas mantle. H. S. Miner. *Met & Chem Eng* 13:50-2 Ja '15; Same. *Am Gas Light J* 102:65-6 F 1 '15; Same. *Sci Am* S 79:139 F 27 '15
 Contributions of the chemist to the incandescent gas mantle industry. S. Mason. *J Ind & Eng Chem* 7:279-80 Ap '15
 Evolution of the Welsbach mantle. *Sci Am* 112:535-6 Je 5 '15
 Plant to manufacture 1,000 gas mantles daily. *Il Textile World* 49:360-1 Je '15
 Recent advances in indoor gas lighting. C. W. Jordan. *Il diags Illum Eng Soc* 9:874-9 no 8 '14
 Visit to some of the leading incandescent mantle works round London. *Il Illum Engr* 7:569-72 D '14

Gas manufacture and works

- Application of by-product coke ovens to the gas industry. J. D. Forrest. *Am Gas Light J* 103:186-9 Mr 22 '15
 Carbonization in bulk—Koppers' ovens. C. J. Ramsburg. *Il diag Am Gas Inst Pro* 9:pt 1, 543-601; Discussion. 9:pt 1, 601-14 '14
 Catalysis in the gas industry. *Sci Am* S 79:125 F 20 '15
 Catalytic agents; their relation to modern methods. *Sci Am* S 80:53 J1 24 '15
 Coal gas residuals—Feld process. F. H. Wagner. diags *Am Gas Inst Pro* 9:pt 1, 840-61 '14; Same cond. *Am Gas Light J* 101:305-9 N 16 '14; Same cond. *Met & Chem Eng* 12:896-702 N '14; Same cond. *Sci Am* S 80:316-19 N 13 '15; Discussion. *Am Gas Inst Pro* 9:pt 1, 361-7 '14
 Coke in gas producers. *Iron Age* 96:464 Ag 26 '15; Same. *Am Gas Light J* 103:186 S 20 '15
 Determination of Prussian blue in washer sludge and spent oxide. *Am Gas Light J* 103:151 S 6 '15
 Experience with a by-product coke oven plant. C. C. Boardman. *Il Am Gas Light J* 102:289-94 My 10 '15
 Gas from sawdust. *J Ind & Eng Chem* 7:542-3 Je '15
 Gas manufacture from the point of view of physical chemistry. W. F. Rittman. *Am Gas Inst Pro* 9:pt 1, 288-300 '14; Same cond. *Am Gas Light J* 101:395-7 D 21 '14; Same cond. *J Ind & Eng Chem* 8:1027-30 D '14; Summary. *Met & Chem Eng* 12:678 N '14; Discussion. *Am Gas Inst Pro* 9:pt 1, 300-4 '14
 Gas producers with by-product recovery. A. H. Lynn. *Il diags Am Soc M E J* 37:253-66 My '15
 Ideal retort: electrical carbonization of coal. H. F. Boughton. diags *Am Gas Light J* 102:315-16 My 17 '15
 Improved Jones oil gas process at the Potrero gas works, San Francisco. E. C. Jones and L. B. Jones. *Il diag Am Gas Light J* 103:23, 26-7 J1 12 '15

Gas manufacture and works—Continued

- Mode of decomposition of coal by heat. H. C. Porter and G. B. Taylor. *diags Am Gas Inst Pro* 9:pt 1, 234-83; Discussion. 9:pt 1, 283-8 '14
- New coal gas installation at Fall River. C. W. Hunter. *il plan Am Gas Light J* 102:145-9 Mr 8 '15; Discussion (Carbonization in New England). 102:362-5 Je 7 '15
- New method of utilizing lignite coal tar; abstract. V. Schon. *Am Soc M E J* 37:403-4 JI '15
- Possible economies from the use of exhaust steam in a water gas plant. S. A. Reinhard and C. A. Schnerr. *il plan Am Gas Light J* 102:225-30 Ap 12 '15
- Recovery of toluene from gas. *diags J Ind & Eng Chem* 7:438-9 My '15
- Report of the committee on progress in carbonization methods. *il diags Am Gas Inst Pro* 9:pt 1, 450-538; Discussion. 9:pt 1, 539-43 '14
- Tall reinforced concrete coke house in Rotterdam. Holland. *il Eng & Contr* 44:229-30 S 22 '15
- Time factor in making oil gas. M. C. Whitaker and C. M. Alexander. *diags J Ind & Eng Chem* 7:484-95 Je '15
- Up-keep of mechanical units in large gas plants. C. A. Jeffers. *Am Gas Light J* 103:211-12 O 4 '15
- Value of mechanical or other indicating and recording appliances in the operations of a gas plant. W. Philpot. *Am Gas Light J* 103:298-9 N 8 '15
- See also Gas—Standards; Gas, Oil; Gas, Water; Gas companies; Gas power plants; Gas producers; Gas purification; Gas retorts; Gas testing; Gas holders
- ## Accidents
- Hazards of gas works. J. B. Douglas. *Am Gas Light J* 103:327, 330 N 22 '15
- ## Bibliography
- Bibliography of the chemistry of gas manufacture. W. F. Rittman and M. C. Whitaker. *U S Bur Mines Tech Pa* 120:1-21 '15
- ## Safety devices and measures
- Report of committee on accident prevention. *Am Gas Inst Pro* 9:pt 1, 82-110; Discussion. 9:pt 1, 111-20 '14
- See also Gas safety code
- ## Gas manufacture and works, Municipal
- Kalamazoo situation. W. Newbigging. *Am Gas Light J* 103:38-9 JI 19 '15
- Municipal gas plant of St. Petersburg, Florida. *il Munic Eng* 48:240-1 Ap '15
- St. Petersburg, Florida, gas plant. *il Am Gas Light J* 102:241-2 Ap 19 '15
- ## Gas measurement
- Measurement of gas in large volumes. J. F. Wing. *diag Am Gas Light J* 102:4-7+ Ja 4 '15
- Measuring gas weights. T. E. Butterfield. *Am Soc M E J* 37:443-5 Ag '15
- Measuring the gas supplied to Panama-Pacific exposition. *il Am Gas Light J* 103:258 O 25 '15
- Report of the committee on measurement of gas in large volumes. *diag Am Gas Inst Pro* 9:pt 1, 677-704; Discussion. 9:pt 1, 705-20 '14
- See also Gas flow; Gas meters; Manometers
- ## Gas meters
- 1877 instructions for reading meters. *Am Gas Light J* 103:173 S 13 '15
- Installation repairing and testing of meters by a small company. C. Otten, jr. *il Am Gas Inst Pro* 9:pt 2, 1184-1205; Discussion. 9:pt 2, 1205-42 '14
- Measurements for the household. *il U S Bur Stand Circ* 55:91-101 '15
- Prepayment meter in the South. M. A. Bowman. *Am Gas Light J* 103:11-13 JI 5 '15
- ## Gas pipe lines
- Engineering problems arising in the transportation of natural gas. J. P. Fisher. *Am Soc M E J* 37:374-7 JI '15
- ## Gas pipes
- Gas piping practice in eastern city. H. R. Sterrett. *Metal Work* 83:347-8 Mr 5 '15
- Installation and maintenance of services. R. B. Duncan. *il diags Am Gas Inst Pro* 9:pt 2, 1052-1161; Discussion. 9:pt 2, 1161-82 '14
- Lead wool as jointing material; abstracts. C. E. Reinicker. *il Am Gas Light J* 102:242-6 Ap 19 '15; Eng & Contr. 43:520-2 Je 8 '15
- Moving a 30-in. gas main. R. J. Van Wagner. *il Eng N* 74:1082 D 2 '15
- Oxy-acetylene welding eliminates joints in gas mains; with cost figures. *il Eng Rec* 71:182 F 6 '15
- Present practice of gas distribution by British undertakings. W. Hole. *il diags Am Gas Light J* 103:805-9, 326 N 15-22 '15
- Proper specifications for and inspection of interior gas piping. A. E. Turner. *Am Gas Inst Pro* 9:pt 2, 1311-26 '14; Same (Standardizing gas piping specifications). *Metal Work* 82:764-7 D 11 '14; Discussion. *Am Gas Inst Pro* 9:pt 2, 1327-37 '14
- Report of committee on distribution, Iowa district gas association. *Am Gas Light J* 102:403 Je 28 '15
- Sizes and equivalent length of services. J. M. Spitzglass. *Am Gas Light J* 103:337-9 N 29 '15
- Sizes of pipes for high pressure gas mains. J. M. Spitzglass. *il diags Am Gas Light J* 102:49-52 Ja 25 '15
- Welding of high pressure mains. J. D. Shattuck. *il diags Am Gas Inst Pro* 9:pt 2, 945-1011 '14; Same abr. *Am Gas Light J* 102:54-5, 58-60, 66-9 Ja 25-F 1 '15; Discussion. *Am Gas Inst Pro* 9:pt 2, 1011-52 '14
- Welding the joints of steel gas mains. *il Eng N* 73:233-4 F 4 '15
- See also Gas distribution; Gas pipe lines
- ## Gas plants. See Gas manufacture and works
- ## Gas power plants
- British producer-gas and ammonia-recovery plant. *diags Met & Chem Eng* 13:456-8 JI '15
- Gas engines replace a steam turbine power plant. C. L. Follmer. *il plan Power* 42:670-4 N 16 '15
- Gas-power plant of the Illinois glass co. at Alton. T. Wilson. *il plan Power* 42:252-6 Ag 24 '15
- Gas producers and concentration of power at mines. R. H. Fernald. *Colliery* 35:415-17 Mr '15
- Gas producers with by-product recovery. A. H. Lynn. *il diags Am Soc M E J* 37:253-66 My '15
- Investigation of the gas-producer power-plants in New York city and vicinity. C. M. Ripley. *Am Soc M E J* 37:683-9; Discussion. 37:688-91 D '15; Abstract. *Power* 42:808-9 D 7 '15
- Modern gas-power blower stations. A. West. *il diags Am Inst Min E Bul* 102:1205-13 Je '15; Abstract. *Am Soc M E J* 37:413 JI '15
- Test of 200-hp. gas-producer plant. F. V. Larkin. *Power* 41:6-7 Ja 5 '15
- See also Blast furnace gas; Coke oven gas; Gas and oil engines; Gas producers
- ## Gas producers
- British producer-gas and ammonia-recovery plant. *diags Met & Chem Eng* 13:456-8 JI '15
- Gas producers and concentration of power at mines. R. H. Fernald. *Colliery* 35:415-17 Mr '15
- Gas producers with by-product recovery. A. H. Lynn. *il diags Am Soc M E J* 37:253-66 My '15
- Gasification of rough lignite; abstract. R. Klostermann. *Am Soc M E J* 37:182 Mr '15
- Important advance in gas producer efficiency. *il Met & Chem Eng* 13:399-400 Je '15
- Investigation of the gas-producer power-plants in New York city and vicinity. C. M. Ripley. *Am Soc M E J* 37:683-9; Discussion. 37:688-91 D '15; Abstract. *Power* 42:808-9 D 7 '15
- Morgan producer gas machine. *il Iron Age* 95:1161-3 My 27 '15; *Iron Tr R* 57:180-3 JI 22 '15
- Power with by-product recovery. T. R. Wollaston. *Engineer* 119:328-7 Ap 2 '15; Same. *Sci Am S* 80:42-3 JI 17 '15
- Progress in gas producer efficiency. *il Eng M* 49:supl-2 Je '15
- Sub-bituminous coal and sawmill waste in producer plant. G. S. Willson. *il Power* 42:442-3 S 28 '15

Gas producers—Continued

Test of 200-hp. gas-producer plant. F. V. Larkin. *Power* 41:6-7 Ja 5 '15

Gas pumps. See Pumps, Gas**Gas purification**

Different kinds of oxide. *Am Gas Light J* 103:133 Ag 30 '15

Electrical process for detarring gas. F. W. Steere. *Il diag Met & Chem Eng* 12:775-8 D '14; Same. *Am Gas Inst Pro* 9:pt 1, 178-89 '14; Same cond. *Eng N* 72:1007 N '19 '14;

Same cond. *Eng M* 48:736-9 F '15; Discussion. *Am Gas Inst Pro* 9:pt 1, 189-89 '14

Filtering producer gas. C. A. Tupper. *Iron Age* 95:455-6 F 25 '15

Fractional collection of crude tar. G. T. Purves. *diags Am Gas Light J* 102:387-90 Je 21 '15

Gas purification with carbonate of potash. *Am Gas Light J* 103:317 N 15 '15

Purifier installations. C. E. Paige. *Il Am Gas Inst Pro* 9:pt 1, 721-50; Discussion. 9:pt 1, 750-62 '14

Purifying producer gas; the use of hydrated iron oxide for the removal of sulphur. A. J. Wallace. *Iron Age* 95:896-7 Ap 22 '15

Removal of carbon bisulphide from coal-gas. E. V. Evans. *diag Met & Chem Eng* 13:239-40 Ap '15

See also Gas cleaning

Gas ranges. See Gas stoves**Gas rates**

Cost and price of gas in a small city. W. C. Butterworth. *Am Gas Light J* 102:180-3 Mr 22 '15

Des Moines gas company case. *Elec R & W Elec'n* 67:328-30 Ar 21 '15

Gas rates. J. H. Maxon. *Am Gas Light J* 102:203-4 Mr 29 '15

Industrial rate based on maximum demand. *Am Gas Light J* 102:283 My 3 '15

Kalamazoo situation. W. Newbelling. *Am Gas Light J* 103:38-9 Jl 19 '15

Logical gas rates. A. S. Ives. *Am Gas Light J* 103:22 Jl 12 '15

National commercial gas association report of committee on differential rates. F. W. Frueauff. *Am Gas Light J* 102:18-23-1 Ja 11 '15

Northampton, Mass., rate case. *Am Gas Light J* 102:154-5 Mr 8 '15

Report of committee on rates. *Am Gas Inst Pro* 9:pt 2, 1758-60; Discussion. 9:pt 2, 1760-81 '14

Southwestern electrical and gas association 11th annual convention. *Am Gas Light J* 102:378-9 Je 14 '15

Specific examples of the benefits from scientific rates. H. L. Coleman. *Am Gas Light J* 101:363-4 D 7 '14

Gas retorts

Ideal retort: electrical carbonization of coal. H. F. Boughton. *diags Am Gas Light J* 102:315-16 My 17 '15

Inclined retorts. R. B. Richardson. *Il diag Am Gas Light J* 102:306-7 My 17 '15

Operation of inclined retorts. F. Huber. *Il Am Gas Inst Pro* 9:pt 1, 406-33 '14; Same cond. *Am Gas Light J* 102:102-3, 106-8 F 15 '15; Discussion. *Am Gas Inst Pro* 9:pt 1, 433-50 '14

Report of the committee on progress in carbonization methods. *Il diags Am Gas Inst Pro* 9:pt 1, 450-539; Discussion. 9:pt 1, 530-43 '14

See also Gas manufacture and works

Gas safety code

Gas safety code of the Bureau of standards. R. S. McBride. *Am Gas Light J* 103:44-5 Jl 19 '15

Gas sampling

Flue-gas collector. C. H. Bean. *diag Power* 42:763 N 30 '15

Flue-gas collector. F. W. Fischer. *diag Power* 42:489-90 O 5 '15

Sampling for average gas. *Am Gas Light J* 102:317 My 17 '15

Gas stoves

Gas range efficiencies. *Am Gas Light J* 102:289 Ap 26 '15

Gas range week. *Il Am Gas Light J* 102:257-62 Ap 26 '15

Rented gas ranges. *Am Gas Light J* 102:326-7 My 24 '15

Standardization of gas appliance specifications. *Am Gas Light J* 102:140-1 Mr 1 '15

What policy is being adopted by gas companies to meet electric stove competition? V. S. McIntyre. *Am Gas Light J* 103:220 O 4 '15

Gas testing

British thermal unit losses on medium pressure line. W. O. Brewer. *Am Gas Light J* 102:220-1 Ap 5 '15; Discussion. 102:327, 330-1 My 24 '15

Coal gas candle power. L. J. Willien. *Am Gas Light J* 102:219-20 Ap 5 '15; Same. *Metal Work* 83:537-8 Ap 9 '15

Composition of gas in relation to the performance of the bunsen burner. R. F. Pierce. *Am Gas Light J* 103:1-5 Jl 5 '15

Efficiency relation existing between various Argand and open flame test burners. F. H. Gilpin. *diags Am Gas Inst Pro* 9:pt 1, 379-401; Discussion. 9:pt 1, 401-4 '14

Gas testing ordinances: coming of calorimetry. J. Abady. *Il Am Gas Light J* 101:369-71 D 14 '14

Instruments for testing gas. M. L. Hamlin. *diags J Ind & Eng Chem* 6:1032-3 D '14

Lead acetate test for hydrogen sulphide in gas. R. S. McBride and J. D. Edwards. *diags pla U S Bur Stand Tech Pa* 41:1-46 '14; Abstract. *J Fr Inst* 178:639-42 N '14; Abstract. *Met & Chem Eng* 13:62 Ja '15

London gas referees' regulations for determining calorific power. *diag Am Gas Light J* 102:313-15 Ap 5 '15

Standards for gas service. *U S Bur Stand Circ* 32:1-190 '15

Tests of a new recording calorimeter. C. H. Stone and W. H. Hinman. *Am Gas Inst Pro* 9:pt 1, 200-10 '14; Same. *Am Gas Light J* 101:387-90 D 21 '14; Discussion. *Am Gas Inst Pro* 9:pt 1, 210-17 '14

See also Gas sampling

Gas tractors

Gas-tractor power plant. C. V. Hull. *Il plan Power* 41:226-8 F 16 '15

Gas turbines

Discussion of the question of the gas turbine; abstract. A. Walter. *diag Am Soc M E J* 37:603-4 O '15

Gas turbine. S. F. Walker. *Colliery* 36:26-8 Ag '15

Gas turbines brought to practical efficiency. C. A. Tupper. *Iron Age* 96:185 Jl 22 '15; Same. *Sci Am* 80:210 O 2 '15

Internal combustion turbine. *Il Am Gas Light J* 102:324-5 My 24 '15

Gas washing. See Gas cleaning**Gas water heaters**

Hotstream water heater. *Il Dom Eng* 72:271 Ag 28 '15

Water heating by gas. C. E. Bartlett. *Am Gas Light J* 102:310-11, 314-15 My 17 '15

What some makers of water heaters are offering the gas company. *Il Am Gas Light J* 102:337-43, 346-8 My 31 '15

Gas wells. See Gas, Natural**Gases**

Chemical reactions at low pressures. I. Langmuir. *Am Chem Soc J* 37:1139-67 My '15; Abstract. *J Ind & Eng Chem* 7:349-51 Ap '15; Abstract. *Met & Chem Eng* 13:244-6 Ap '15

Hydrogen and the rare gases. J. Dewar. *Sci Am* 8 79:191 Mr 30 '15

Method for calculating that part of the recoil momentum of a gun which is due to the action of the gases after the projectile leaves the muzzle. W. S. Franklin. *J Fr Inst* 179:559-77 My '15

Physical laws of methane gas. P. F. Walker. *Am Soc M E J* 37:176-9 Mr '15

Vapor pressure of ethane and ethylene at temperatures below their normal boiling points. G. A. Burrell and I. W. Robertson. *diags Am Chem Soc J* 37:1893-1902 Ag '15

See also Air; Blast furnace gas; Coke oven gas; Firedamp; Flue gas; Gas; Gas and oil engines; Hydrogen; Inflammable mixtures; Ionization; Mine gases; Nitrogen; Oxygen; Ozone; Sewer gas

Analysis

See Gas analysis

- Gases, Asphyxiating**
Combating poisonous gases; abstracts. P. Pascal. *diag Eng M* 50:114-16 O '15; *Engineer* 119:598 Je 18 '15
Dispersing asphyxiating gases. *II Sci Am* 113: 95 JI 31 '15
Modern munitions of war. V. Lewes. *Engineer* 120:82-3 JI 22 '15
Poisonous gases and incendiary bombs. Ry R 57:375-8 S 18 '15
Poisonous gases in warfare. W. A. Tilden. *Eng M* 49:729 Ag '15
Use of poisonous gases in warfare. J. B. C. Kershaw. *II Sci Am* 112:595+ Je 12 '15
- Gases, Kinetic theory of**
Kinetic theory of gases. S. Dushman. *Gen Elec R* 18:952-5, 1042-3, 1159-68 O-D '15
- Gas holders**
Care and maintenance of gas holders. J. H. Braine. *II Am Gas Inst Pro* 9:pt 1, 762-840 '14; Same cond. *Am Gas Light J* 101:855-9+, 872-5, 878-80 D 7-14 '14; Discussion. *Am Gas Inst Pro* 9:pt 1, 840-76 '14
Concrete pile holder foundation at Lynn. F. H. Drake. *II diag Am Gas Light J* 102:163-6 Mr 15 '15; Discussion. 102:235-7 Ap 12 '15
Gas holder without a water tank. *diag J Ind & Eng Chem* 7:802 S '15
Novel design in gas holders. *J Fr Inst* 120:638 N '15
- Gasol. See Acetylene, Substitutes for**
- Gasoline**
Absorption of gasoline vapor in natural gas by fuming sulfuric acid. R. F. Anderson and C. J. Engelder. *J Ind & Eng Chem* 6:929-32 D '14
Analysis and valuation of motor fuels—14 methods for examining them. from German data. *Automobile* 33:202-5, 247-9+ JI 29-Ag 5 '15
Burton process of cracking to make gasoline. C. H. Claudy. *II Sci Am* 112:5+ Ja 2 '15
Camphor in gasoline improves its quality. E. M. Keating. *Inland Pr* 56:383-4 D '15
Cars, oil production and the price of gasoline. *II Horseless Age* 36:265-7 S 15 '15
Chemist as a trust buster. *Sci Am* 112:284 Mr 27 '15
Condensation of gasoline from natural gas. G. A. Burrell, F. M. Seibert and G. G. Oberfell. *diag pte U S Bur Mines Bul* 88:3-100 '15; Excerpts. *Automobile* 33:92 JI 8 '15
Determination of gasoline vapor in air. G. A. Burrell and L. W. Robertson. *diag J Ind & Eng Chem* 7:112-13 F '15
Dr. Rittman's gasoline process. *Sci Am* 112: 245 Mr 13 '15; Same. *Horseless Age* 35:285+ Mr 3 '15
Experiments show action of mixtures of air and gasoline vapor. H. S. Webb. *Automobile* 32:510-11 Mr 18 '15
Gasoline from natural gas. F. E. Matthews. *Power* 42:677-8 N 18 '15
Gasoline from synthetic crude oil. W. O. Snelling. *Am Inst Min E Bul* 100:695-704 Ap '15; Same. *Sci Am* S 79:189-91 Mr 20 '15; Same cond. *Sci Am* 112:286-7 Mr 20 '15; Abstract. *Met & Chem Eng* 13:180-1 Mr '15; Discussion. *Am Inst Min E Bul* 101:1162-9 My '15
Gasoline from synthetic oil. W. O. Snelling. *Eng & Min J* 99:379 F 30 '15; Same. *Am Gas Light J* 102:156 Mr 3 '15
Handling gasoline. *Munic J* 39:315-16 Ag 26 '15
Improvement of high boiling petroleum oils, and the manufacture of gasoline as a by-product therefrom, by the action of aluminum chloride. A. M. McAfee. *J Ind & Eng Chem* 7:787-41 S '15; Same. *Met & Chem Eng* 13:592-7 S 15 '15; Same abr. *Am Gas Light J* 103:293-5+ N 8 '15; Abstract. *Eng N* 74:532 S 18 '15
Increased gasoline yield and toluol from petroleum. *Am Gas Light J* 102:156-7 Mr 8 '15
Inflammability of mixtures of gasoline vapor and air. G. A. Burrell and H. T. Boyd. *diag U S Bur Mines Tech Pa* 115:1-16 '15; Same cond. *J Ind & Eng Chem* 7:414-17 My '15; Summary. *Met & Chem Eng* 13:502 N 1 '15
Innovations in petroleum technology. *Eng M* 49:111-12 Ap '15
Manufacture of gasoline by cracking heavy oil. *Sci Am* S 79:283 My 1 '15
Motor fuels; situation in England, and on the continent. V. B. Lewes. *Am Gas Light J* 103:165-7, 170-1, 178-81 S 18-20 '15
Preparation of gasoline and kerosene from heavier hydrocarbons. B. T. Brooks and others. *diag J Ind & Eng Chem* 7:180-5 Mr '15
Rittman process of cracking. C. H. Claudy. *II Sci Am* 112:267 Mr 20 '15
Rittman processes. *Horseless Age* 36:388 O 15 '15
Rittman vaporizes petroleum in still. *diag Automobile* 32:555 Mr 25 '15
Statistical review of the question of gasoline supply. B. T. Brooks. *J Ind & Eng Chem* 7:176-9 Mr '15
Storage and handling of gasoline in the garage. H. T. Wade. *II Sci Am* 112:12-13 Ja 2 '15
Thermal reactions of petroleum hydrocarbons in the vapor phase. W. F. Rittman. *J Ind & Eng Chem* 7:945-53 N '15
Two new fuel processes discovered. *Automobile* 32:427 Mr 4 '15
Weight of a gallon of gasoline. *Automobile* 33:200 JI 29 '15
- Storage**
See Oil storage
- Gasoline, Substitutes for**
Abandon manufacture of new fuel xoline. *Horseless Age* 34:327 D 30 '14
Natalite a gasoline substitute. *Automobile* 32:1094 Je 17 '15
- Gasoline engines. See Gas and oil engines**
- Gasoline in sewers**
Apparatus for testing sewer atmosphere for explosive gases. H. J. Kellogg. *diag Eng & Contr* 42:273 S 16 '14
Inflammable wastes in sewers. N. S. Sprague. *diag Munic Eng* 47:338-43 N '14; Same. *Eng & Contr* 42:476-8 N 18 '14; Excerpt. *Eng Rec* 70:442-3 O 17 '14
Investigation of sewer air following Boston explosion. H. W. Clark. *Eng Rec* 70:806-7 D 5 '14
Quantity of gasoline necessary to produce explosive mixtures in sewers. G. A. Burrell and H. T. Boyd. *diag J Ind & Eng Chem* 7:750-4 S '15; Abstract. *Eng N* 74:955 N 11 '15
- Gasoline shovels. See Shovelling machines**
- Gasoline tractor. See Tractors**
- Gate posts**
Gate and posts, Baldwin-Lyman house, Salem, Mass., built in 1808; measured and drawn by G. Robb. *Brickb* 24:pl 10 N '15
- Gates**
Concrete headgate, south San Joaquin and Oakdale irrigation district in California. F. C. Scooby. *diag Eng & Contr* 43:393 Ap 28 '15
Mitering lock gate at Keokuk presents novel features. B. H. Parsons. *II diag Eng Rec* 72:344-9 S 18 '15
New type of gate for regulating adjacent water levels operates automatically. *diag Eng Rec* 71:304-5 Mr 6 '15
Repairs to the gates at the 70-foot entrance to the Tyne docks. *II Engineer* 120:412, 418 O 29 '15
Wicket gates the logical development for hydraulic turbine regulation. L. F. Moody. *diag Eng Rec* 72:358-60 S 18 '15
See also Floodgates
- Gateways**
Construction of a covered gateway. *diag Bldg Age* 87:63-4 D '15
Design for attractive entrance gateway. *II Bldg Age* 87:61-2 My '15
Dudley memorial gate, Harvard university; views. *Brickb* 24:255-6 O '15
- Gatun dam**
Credit for the Gatun dam. *Sci Am* 112:356 Ap 17 '15
Gatun dam; paper presented at meeting of Am. Soc. C. E., May 18, 1904. C. D. Ward. *Sci Am* S 79:247 Ap 17 '15

- gear cutting**
Automatic bevel gear generator. *Il Iron Age* 96:743-50 S 30 '15
Bevel gear roughing shaping machine. *Il Iron Age* 95:399 F 13 '15
Electric alarm for bevel gear generator. *El. K. Morgan. diag Mach* 22:232 N '15
Fawcus herringbone gear hobbing machine. *Il diag plan Mach* 21:506-9 F '15
Finding change gears for hobbing spiral gears. *G. W. Felton. Mach* 21:905-7 J1 '15
Fixture for milling spiral gears. *R. A. Black. diags Mach* 21:918-19 J1 '15
Flather automatic gear-cutter. *Il Mach* 21:762-3 My '15
Gleason bevel gear planing generator. *Il Mach* 22:152-3 O '15
Gleason 30-foot herringbone and spur gear planer. *Il diags Mach* 21:503-5 F '15
Gould & Eberhardt turret-type ring gear roughing machine. *Il Mach* 21:761-2 My '15
Hobbing small gears on the milling machine. *diag Mach* 21:406 Ja '15
Involute gear tooth forming device; simple method of laying out a templet or forming cutter. *G. Luck. diags Mach* 21:716-17 My '15
Machine for cutting bevel gears. *Il Iron Tr R* 56:455+ Mr 4 '15
Machine for generating worm wheels. *Il Iron Age* 96:751 S 30 '15
Making the spiral bevel gear. *Il Automobile* 32:357-60 F 25 '15
Methods of chamfering gear teeth. *diags Mach* 21:495-6 F '15
Multiple spindle gear roughing machines at the Ford automobile shops. *H. B. Eberhardt. Sibley J* 29:38-9 D '14
Newton worm-wheel hobbing machine. *Il Mach* 22:189 O '15; *Ry Age (Mech ed)* 89:597 N '15
Results obtained with ground hobs. *E. K. Hammond. Il diags Mach* 21:695-700 My '15
Turning, gashing and hobbing wormwheels. *Il diag Mach* 21:969 Ag '15
Von Marchthal's system for verifying or replacing the division disks used for gear cutting. *diags Automobile* 32:236-7 F 4 '15
- Gearing**
Developments in the heat treatment of railway gearing; with discussion. *W. H. Phillips. Il Eng Soc W Pa* 30:737-77 N '14; *Abstract. Iron Tr R* 55:1134 D 17 '14; *Abstract. Am Soc M E J* 37:237-8 Ap '15
Differential gears to eliminate rail corrugation. *Il diag Elec Ry J* 46:25-7 J1 3 '15
Effect of gear ratio on operating economy. *Elec Ry J* 46:68-70 J1 10 '15
Gear diagrams: methods for the rapid solution of problems in gear design. *H. D. Hess. Mach* 22:131-4 O '15
Gearing for connecting high-speed machines to low-speed machines. *Il Elec W* 65:1476 Je 5 '15
Heat treatment of gears. *Iron Age* 96:629 S 16 '15
Machines for Warner gear making. *Il Automobile* 32:1129 Je 24 '15
Making small gear wheels with a molding machine. *R. A. Miles. Il diags Foundry* 43:161-2 Ap '15
New type of speed changing gear. *Il Iron Age* 96:244 J1 29 '15
Operating conditions of railway motor gears and pinions. *A. A. Ross. Il Gen Elec R* 18:249-58 Ap '15
Railway motor gearing. *W. L. Allen. Il Elec Ry J* 45:1201-3; 46:111-12 Je 26, J1 17 '15
Reduction gears on the Pennsylvania. *Il diags Int Marine Eng* 20:339-40 Ag '15
Running tool steel pinions with soft steel gears: abstract. *El. S. Sawtelle. Ind Eng* 14:467 D '14
Strength of gear teeth. *G. H. Marx and L. H. Cutter. diag Am Soc M E J* 37:637-45 N '15; *Discussion. 37:704 D '15*
Turbine speed reduction gear. *Il diags Engineer* 120:315-16 O 1 '15
Turbo-reduction gear. *Il diag Power* 41:887 Je 29 '15
Use of continued fractions in mechanical problems. *W. W. Johnson. Il diag Mach* 21:802-4 Je '15
See also Automobiles—Gearing; Chain gear; Gear cutting; Motor trucks—Gearing
- Gearing, Bevel**
Hardening bevel wheels by special machine. *Il diag Automobile* 32:461 Mr 11 '15
- Gearing, Helical**
Planetary reduction gear. *Il Eng & Min J* 100:191-2 J1 31 '15
- Gearing, Herringbone**
Fawcus herringbone gear hobbing machine. *Il diag plan Mach* 21:506-9 F '15
- Gearing, Spiral**
Finding change gears for hobbing spiral gears. *G. W. Felton. Mach* 21:905-7 J1 '15
Making the spiral bevel gear. *Il Automobile* 32:357-60 F 25 '15
Spiral type bevel gears for automobile drives. *A. L. Stewart. Horseless Age* 35:301-2 Je 16 '15; *Discussion. Automobile* 32:1110-11 Je 24 '15
- Gearing, Worm**
Empirical worm-gear formulas. *El. S. Hedstrom. Mach* 21:724-6 My '15
Internal gear drive vs. worm drive. *A. F. Mais. Horseless Age* 35:352 Je 23 '15
Internal gear vs. worm truck drives. *C. H. Taylor. Horseless Age* 35:746 Je 2 '15
Internal vs. worm gears. *A. F. Mais. Horseless Age* 36:384 J1 21 '15
Manufacture of worm gearing by a new process: a comparison of the straight and hourglass type of worms. *C. T. Myers. Il diags Horseless Age* 35:116-21 Ja 20 '15
Worm drive for motor trucks. *Horseless Age* 35:441 Mr 31 '15
Worm drive vs. internal gear drive. *C. C. Hancock. Horseless Age* 35:650-1 My 12 '15
Worm gear efficiency. *C. H. Calkins. Il Horseless Age* 34:932 D 30 '14
- Gedney Farm hotel.** *See White Plains, N. Y.—Hotels*
- Gelatinizing agents**
Concise group method for the detection of gelatinizing agents, pasty material and thickeners, used in food products. *L. A. Congdon. J Ind & Eng Chem* 7:606-7 J1 '15
- Gems**
Testing
Tables for the determination of gems and precious or ornamental stones without injury to the specimen. *A. J. Moses. Sch Mines Q* 36:199-232 Ap '15
- Genemotor**
Genemotor; a self-starting and lighting system for Fords. *Il diag Horseless Age* 35:537-8 Ap 21 '15; *Same. Automobile* 32:742 Ap 22 '15
Genemotor; a single unit starting and lighting system for moderate-priced automobiles. *M. J. Fitch. Il diags Gen Elec R* 18:384-7 My '15
- General electric company**
Annual report, 1914. *Il Elec W* 65:1031 Ap 24 '15
Safety and welfare work in an electrical plant. *C. L. Lucas. Il Mach* 22:210-14 N '15
- Generators, Electric.** *See Dynamos*
- Geography**
Study and teaching
Table-top geography; hints on the construction of simple models. *P. Collins. Il Sci Am* 112:270 Mr 20 '15
- Geography and history**
Problems of geographic influence. *A. P. Brigham. Sci Am S* 79:374; 80:10-11, 19, 38-9 Je 13, J1 3-17 '15
- Geological time**
Birth-time of the world: methods of determining its age. *J. Joly. Sci Am S* 79:77-9 Ja 30 '15
Excursions on geological time. *A. Harker. Sci Am S* 80:118-19 Ag 21 '15
Sea-salt and geologic time. *H. S. Shelton. Sci Am S* 79:79-80 Ja 30 '15
- Geology**
Application of geology to the problems of the municipal engineer. *H. Lapworth. Eng & Contr* 42:179-81 Ag 19 '14
Economic geology. *A. Knopf. Eng & Min J* 99:102-4 Ja 9 '15

Geology—Continued

Geology in relation to the exact sciences. A. Harker. *Sci Am S* 80:71 J1 31 '15
 Origin of the Rocky mountains. S. J. Schofield. *Il Sci Am S* 79:88-9 F 6 '15
 Potassium salts; an economic geological study. E. M. Heriot. *Il maps Eng & Min J* 100:669-72, 712-14 O 23-30 '15
 War geology. W. Salomon. *Sci Am S* 80:267 O 23 '15

See also Asphalt; Clay; Coal; Earth; Earthquakes; Gas, Natural; Gypsum; Landslides; Metals; Mineral waters; Mines and mineral resources; Ore deposits; Petroleum; Phosphates; Rocks; Salt

Alaska

Geology of Juneau district. F. B. Hyder. *Eng & Min J* 99:901-3 My 22 '15

Alberta

Correlation and geological structure of the Alberta oil fields. D. B. Dowling. *map Am Inst Min E Bul* 102:1355-64 Je '15

Colorado

Geology and ore deposits of Red Cliff, Colorado. A. H. Means. *Econ Geol* 10:1-11 Ja '15
 Ores of Gilpin county, Colorado. E. S. Bastin. *Il Econ Geol* 10:262-91 Ap '15

Connecticut

Sulphide-bearing rocks from Litchfield, Conn. E. Howe. *diags Econ Geol* 10:330-47 Je '15

Cuba

Geology of the iron-ore deposits in and near Daiquiri. J. F. Kemp. *Il diags map Am Inst Min E Bul* 105:1801-36 S '15
 Iron deposits of Daiquiri, Cuba. W. Lindgren and C. P. Ross. *bibliog Il Am Inst Min E Bul* 106:2171-90 O '15

India

Ancient sedimentary iron ores of British India. C. M. Weld. *maps Econ Geol* 10:435-52 J1 '15

Kentucky

Harlan, Ky., coal field. W. R. Peck. *Colliery* 35:649-55 J1 '15

Kongo

Economic geology of the Belgian Congo, Central Africa. S. H. Ball and M. K. Shaler. *Il map Econ Geol* 9:605-63 O '14; *Excerpts. Eng & Min J* 99:441, 608-11 Mr 6, Ap 3 '15

Mexico

Furber oil field, Mexico. E. Degolyer. *Il map Am Inst Min E Bul* 105:1889-1911 S '15
 Mexican oil fields. L. G. Huntley. *Il maps Am Inst Min E Bul* 105:2089-106 S '15
 Oil region of northeastern Mexico. V. R. Garza. *bibliog Econ Geol* 10:195-224 Ap '15

Montana

Boulder batholith of Montana. P. Billingsley. *diags maps Am Inst Min E Bul* 97:31-47 Ja '15; *Discussion. 101:1123-37 My '15*

Nevada

Goldfield and its present boom. H. C. Cutler. *Il Eng & Min J* 99:221-4 Ja 30 '15

New Mexico

Geology of the Burro mountains copper district, New Mexico. R. E. Somers. *Il maps Am Inst Min E Bul* 101:957-96 My '15; *Discussion. 108:2476 D '15*

Oklahoma

See also Petroleum—Oklahoma

Quebec

Gold-bearing gravels of Beauce county, Quebec. J. B. Tyrrell. *Am Inst Min E Bul* 99:609-20 Mr '15

Sicily

Origin of the sulphur deposits of Sicily. W. F. Hunt. *Il Econ Geol* 10:543-79 S '15

Sweden

Problems in iron ore geology in Sweden and in America. P. Geijer. *Il Econ Geol* 10:299-329 Je '15

Tennessee

Geological anatomy of a Tennessee zinc mine. F. L. Nason. *diags Eng & Min J* 100:259-62 Ag 14 '15
 Zinc deposits of eastern Tennessee. F. L. Nason. *Eng & Min J* 99:734-6 Ap 24 '15

Utah

Geology of the ore deposits of the Tintic mining district. G. W. Crane. *Am Inst Min E Bul* 105:2147-60 O '15; *Same cond. Eng & Min J* 100:753-7 N 8 '15
 Processes of mineralization and enrichment in the Tintic mining district. W. Lindgren. 2 pls *Econ Geol* 10:225-40 Ap '15
 Relation of ore deposits to different types of intrusive bodies in Utah. B. S. Butler. *map Econ Geol* 10:101-22 F '15

Virginia

Oriskany iron ores of Virginia. C. M. Weld. *maps Econ Geol* 10:399-421 J1 '15

Washington

Petrology and economic geology of the Skykomish basin, Washington. W. S. Smith. *Il map Sch Mines Q* 38:154-85 Ja '15

Wisconsin

Wisconsin zinc district. H. C. George. *Il maps Eng & Min J* 100:295-300 Ag 21 '15

Yellowstone national park

Geology of the Yellowstone national park. C. H. Butman. *Il Sci Am S* 79:7-9 Ja 2 '15

Geometrical drawing

Geometrical constructions. K. D. McFarlane. *diags Mach* 21:668-9 Ap '15

See also Mechanical drawing

Geometry

See also Geometrical drawing

Georgian architecture. See Architecture, Colonial**German silver**

German silver; melting, casting and rolling. R. A. Wood. *Il Metal Ind n s* 13:229-32, 322-3 Je, Ag '15
 Metallography of German silver. F. C. Thompson. *Met & Chem Eng* 12:785-6 D '14

Germany

German science: abstract. *Ind Eng* 14:446 N '14
 Two points of view. *Sci Am* 113:422 N 13 '15
See also Railroads—Germany

Army

Foresters in the German army. T. R. Helms. *Il Am For* 21:527-31 Ap '15
 German army administration. O. von Gottberg. *Sci Am S* 80:363 D 4 '15
 German post office and the German army. A. Gradenwitz. *Il Sci Am* 113:25+ J1 3 '15
 Telegraph and telephone in the German army. *Il Sci Am S* 80:177, 181 S 18 '15

Colonies

German colonies as outposts of science. *Sci Am* 111:450 D 5 '14

Commerce

Balance of trade in chemicals between the United States and Germany in 1913. *J Ind & Eng Chem* 6:1034-5 D '14

Germany's export trade; how the 1912 foreign business of \$30,000,000 was distributed. M. Braun. *Automobile* 31:1009-13+ D 3 '14

Hints for American exporters. F. Schreibman. *Eng M* 49:562-71 Ag '15

Economic policy

German cartel policy. O. H. Luken. *Eng M* 48:508-16 Ja '15

Food supply

Feeding the German nation in time of war. *Sci Am* 112:125 F 6 '15

Is Germany self-sustaining in war? B. Baker. *Sci Am* 111:460 D 5 '14

Industries and resources

Causes of Germany's industrial prosperity. H. H. Campbell. *Eng M* 48:801-7 Mr '15

Germany—Industries—Continued

- Chemical industries of Germany. P. F. Frankland. *Met & Chem Eng* 13:378-87 Je '15;
 Same. *Sci Am S* 79:389-90, 402-3 Je 19-26 '15
 Economic causes of the war traced to mushroom growth of German industries. H. Hauser. *Automobile* 33:382-5 Ag 26 '15
 European textile industry. *Textile World* 49:406-8 Jl '15
 Future of Germany's steel industry. H. H. Campbell. *Iron Age* 96:189-9 Jl 23 '15
 German agriculture in war time. *Sci Am* 112:216 Mr 6 '15
 German industrial competition—after the war. *Engineer* 119:245-6 Mr 12 '15
 German system and method; effect of the war on her industries. *Sci Am S* 79:155 Mr 6 '15
 Germany as nature's competitor. *Sci Am* 113:442 N 20 '15
 Is Germany self-sustaining in war? B. Baker. *Sci Am* 111:460 D 5 '14
 Tasks of German inventors in wartime. *Sci Am* 113:214+ S 4 '15
 Textile trade in Germany. *Textile World* 48:376-8 Ja '15
 What Germany is doing in the chemical and metallurgical industries. *Eng & Min J* 99:829 My 8 '15; Same cond. *Sci Am S* 80:5 Jl 3 '15

Intellectual life

- War and the scholars. *Sci Am* 112:488 My 29 '15

Law

- Commercial laws of England, Scotland, Germany and France. A. J. Wolfe and E. M. Borchard. *U S Bur For & Dom Com* 97:24-68 '15

Military aeronautics

- Zeppelin question; facts and figures indicating the number and capacity of the air fleet. G. Prade. *Sci Am S* 79:214-15 Ap 3 '15

Navy

- Recent German naval construction. M. K. Barnett. *Sci Am* 113:484+ D 4 '15
 Von Tirpitz and his navy. *Sci Am* 113:334 O 16 '15
 When the German fleet comes out. *Sci Am* 112:586 Je 12 '15

Geysers

- Apparatus to illustrate the action of geysers. *Sci Am* 111:511 D 19 '14

Gibbons, Grinling, 1648-1721

- Grinling Gibbons and the woodwork of his age. Review by R. F. Bach. *Arch Rec* 38:189-90 Jl '15

Gibbs medal

- Gibbs medal award to Arthur A. Noyes. W. L. Harkins; J. Stieglitz. *J Ind & Eng Chem* 7:449-50 My '15

Gilpin county, Colorado

- Ores of Gilpin county, Colorado. E. S. Bastin. *Il Econ Geol* 10:262-91 Ap '15

Ginpoles

- Raising a gin pole. E. M. Keys, jr. *diag Power* 41:29 Ja 5 '15
 Tripod of 3-inch pipe sets arch centers in close quarters. *Il Eng Rec* 71:277 F 27 '15

Girders

- Chart for designing reinforced concrete beams. R. R. Leffer. *Eng & Contr* 42:135-8 Ag 5 '14
 Columns over clearways in Newark terminal. *diag Eng N* 74:991 N 18 '15
 Design methods in concrete construction. J. Cochran. *Concrete Cem* 6:33-4, 83-5, 145-8 190-2 Ja-Apr '15
 Design of beams, girders and trusses. E. McCullough. *diags Bldg Age* 38:27-8 Jl: 33-4 Ag: 29-30 S; 37-9 O; 37-9 N; 27-9 D '14; 37:39-41 Ja: 31-3 F; 27-8 Mr: 49-50 Ap: 49-50 My: 47-8 Je: 45-6 Jl; 27-8 Ag; 29-30 S; 37-8 N; 51-2 D '15
 Design of rectangular concrete beams. H. Harding. *Am Soc M E J* 37:529-31 S '15
 Design of reinforced concrete T-beams and rectangular beams with steel in compression. M. J. Lorente. *Eng & Contr* 43:182-4 F 24 '15

- Designing of reinforced concrete beams; some data tending to show errors in present theory and practice. L. J. Mensch. *Eng & Contr* 44:108-11 Ag 11 '15
 Determining the stresses in an offset beam. W. L. Cathcart. *Mach* 21:672 Ap '15
 Diagram for wooden beams. W. D. Hudson. *Eng N* 73:639 Ap 1 '15
 Draw diagrams for beams reinforced for compression. W. W. Clifford and C. H. Mangold. *Eng Rec* 72:472 O 16 '15
 Erecting 40-ton girders at a height of 250 feet above the street. *Il diags Eng Rec* 70:699-702 D 26 '14
 Erecting 36-ton girders with steel shears. *Il Eng Rec* 70:606 D 5 '14
 Field methods in concrete construction—beam and slab forms. J. Cochran. *diags Concrete Cem* 6:235-8+ Je '15
 Graphical method for designing simple reinforced concrete beams and data for designing simple, double-reinforced and T-beams. R. R. Leffer. *Eng & Contr* 43:239-42 Mr 17 '15
 Heavy plate-girders in track-elevation work. *Il Eng N* 73:1036-7 My 27 '15
 Heavy trusses and foundation girders used in steel bank building. *diags Eng Rec* 71:713-14 Je 5 '15
 Maximum E-50 shears and moments at points of short beams. W. M. Elliot. *Eng Rec* 72:638 N 20 '15
 Maximum stresses in tension reinforcement. M. J. Lorente. *Eng & Contr* 42:366 O 14 '14
 Nomographic charts for simple beam design. C. D. Conklin, jr. *Eng Rec* 71:809 Je 26 '15
 Nomographic solutions for formulas of various types R. C. Strachan. *Eng Rec* 71:807-9 Je 26 '15
 Reinforcing spring in place holds concrete to plate girders. R. C. Hardman. *diag Eng Rec* 72:673 N 27 '15
 Results of some tests of I-beam connections. C. S. Whitney. *diags Eng & Contr* 44:35-7 Jl 14 '15
 Shear in beams. E. Jonson. *Eng Rec* 71:25 Ja 2 '15
 Shrinkage and time effects in reinforced concrete. F. R. McMillan. *Il Minn U Bul* 3:1-41 '15; Abstracts. *Eng Rec* 72:251-3 Ag 28 '15; *Eng & Contr* 44:306-10 O 20 '15
 Special methods of reinforced concrete design; with discussion. M. J. Lorente. *diags Boston Soc C E J* 2:265-82 S '15
 Suspended beam forms—their advantages and disadvantages. S. Diamant. *diag Eng Rec* 71:120 Ja 23 '15
 Tables for determining the bending moments and shears in simple beams and in beams fixed at one and both ends. S. M. Cotten. *Eng & Contr* 43:335-40 Ap 14 '15
 Tests of I-beam connections made at Cornell. *Eng Rec* 71:746 Je 12 '15
 Tests on the shearing resistance of reinforced concrete beams; abstract. E. Brown, H. M. MacKay and C. M. Morssen. *Am Soc M E J* 37:724 D '15
 Torsion strength of reinforced concrete beams. *Am Soc M E J* 37:49-50 Ja '15
See also Bridges; Building; Graphic statics; Roofs; Steel construction; Strains and stresses; Trusses

Glands

- Biochemical systems and their function in the development of the organism. W. Bechterew. *Sci Am S* 79:131 F 27 '15
 Therapeutic uses of preparations of the ductless glands. R. G. Torrey. *Sci Am S* 80:122-3, 134-5 Ag 21-28 '15

Glare

- Eye-sight vs. glaring lights and the fixture. F. L. Godinez. *Arch & Bldg* 46:479-80 D '14
 Glare as a factor in street lighting. A. J. Sweet. *Elec R & W Elec'n* 66:439-43 Mr 6 '15
 Glare in museum galleries; the psychological factor in the lighting problem. B. I. Gilman. *diags Arch Rec* 38:262-80, 362-78 Ag-S '15
 In the glare. F. L. Godinez. *Arch & Bldg* 46:421-2 N '14
 Optical properties of diffusing media. *Illum Eng Soc* 10:353-402 no 5 '15

Glare—Continued

Testing the gloss of paper and other materials. *diag Illum Engr* 8:425-7 O '15

Glasgow**Harbour**

Improvement of the river Clyde and harbour of Glasgow, 1873-1914. T. Mason. *Engineer* 119:277 Mr 19 '15

Glass

Cleveland lantern for ornamental lighting. W. Harrison. *II Elec W* 66:521-4 S 4 '15

Contributions of the chemist to the glass industry. A. A. Houghton. *J Ind & Eng Chem* 7:290-2 Ap '15

Daylight glass; abstract. S. H. Gage. *Elec W* 66:1041 N 6 '15

Development of daylight glass; with discussion. E. J. Brady. *diags Illum Eng Soc* 9: 887-80 no 9 '14

Glass-making at the Ediswan works. *II Illum Engr* 8:434-5 O '15

Holophane glassware for shoplighting. *Illum Engr* 7:562 D '14

How glass is graded. M. McElvoy. *Eng Rec* 72:458 O 9 '15

Lighting of rooms through translucent glass ceilings; with discussion. E. J. Edwards. *II Illum Eng Soc* 9:1011-20 no 9 '14

Manufacture of laboratory glassware in Great Britain. D. G. Anderson. *J Ind & Eng Chem* 7:543-4 Je '15; *Sema. Sci Am S* 80:59 J1 24 '15

Manufacture of optical glass in America. *Sci Am* 112:175 F 20 '15

Partitions of translucent pressed-glass units. *II Eng N* 72:1269 D 24 '14

Relation of chemistry and mechanical manipulation to the evolution of the glass industry. R. L. Frink. *Met & Chem Eng* 13:800-2 N 1 '15

Sand blast for marking glassware. G. Spitzer and L. S. Trachsel. *diag J Ind & Eng Chem* 7:428-7 My '15

Selenium in the production of colored glass. S. Wein. *Sci Am* 112:361 Ap 17 '15

Triplex glass. *Sci Am S* 80:187 S 18 '15

Glass bricks

Translucent glass bricks. *Sci Am S* 79:3 Ja 2 '15

Glass cutting

To cut glassware easily. E. J. Hall. *Eng & Min J* 100:315 Ag 21 '15

Glass factories

Illumination of glass factories. W. A. D. Evans. *II Elec R & W Elec'n* 87:78-81 J1 10 '15

Glens Falls, New York**Bridges**

Architectural effects secured in Glens Falls arch bridge over Hudson river. *II diags Eng Rec* 72:574-6 N 6 '15

Gloverville, New York**Sewerage**

Construction and operation of Gloversville sewage works. H. P. Eddy and H. J. Hammer. *II plan Eng N* 74:744-7, 780-1 O 14-21 '15

Glucose

Absorption of glucose by bone-black. H. A. Morton. *Am Chem Soc J* 36:1832-3 S '14

Commercial glucose and its uses. G. W. Rolfe. *Sci Am S* 79:314-15 My '15; *Abstract. Met & Chem Eng* 13:332-3 My '15

Comparison of the optical rotatory powers of the alpha and beta forms of certain acetylated derivatives of glucose. C. S. Hudson and J. K. Dale. *Am Chem Soc J* 37:1264-70 My '15

Contributions of the chemist to the corn products industry. E. T. Bedford. *J Ind & Eng Chem* 7:275-6 Ap '15

Glue

Conversion table for glues. I. Ginsberg. *J Ind & Eng Chem* 6:1087 D '14

Hints on the use of glue. W. H. Wilkin. *Bldg Age* 37:63-4 N '15

Tests upon glue, particularly the tensile strength. A. H. Gill. *diag J Ind & Eng Chem* 7:102-6 F '15

Gluten

Colloidal swelling of wheat gluten. F. W. Upson and J. W. Calvin. *II Am Chem Soc J* 37: 1295-1304 My '15

Glyceric aldehyde

Isolation of crystalline *dl*-glyceric aldehyde from a syrup obtained by the oxidation of glycerol. E. J. Witzemann. *Am Chem Soc J* 36:2223-34 O '14

Synthetic preparation of *dl*-glyceric aldehyde. E. J. Witzemann. *Am Chem Soc J* 36:1908-16 S '14

Glycocamidine compounds

Researches on hydantoins; a new method of synthesizing glycocamidine compounds, and the conversion of glycocamidine into isomers of creatinine. T. B. Johnson and B. H. Nicolet. *Am Chem Soc J* 37:2416-26 O '15

Gogebic range. See Iron mines and mining—Michigan**Goggles**

Colored glasses for eye protection. M. Luckiesh. *Iron Tr R* 57:487-8 S 2 '15

Goggles for ear welding and cutting. F. W. King. *II Iron Age* 95:295 F 4 '15

Goggles for grinders. H. W. Davis. *Iron Age* 94:1469 D 24 '14

How to test lenses of goggles. F. W. King. *Foundry* 43:449-50 N '15

Proper eye protection. W. B. McKibbin. *II Mach* 21:298 D '14

Specifications for chipper's goggles. *diags Iron Tr R* 55:1227 D 31 '14

Going value

Des Moines gas company case. *Elec R & W Elec'n* 67:329-30 Ag 21 '15

Utilities bureau; conference on valuation. Philadelphia, 1915. *Elec Ry J* 46:1032-3 N 20 '15

Valuation of water works properties. H. P. Gillette. *Eng & Contr* 44:258-61 O 6 '15

Gold

Gold and silver statistics. F. Hobart. *Eng & Min J* 99:47-8 Ja 9 '15

What excessive gold supply may do. *Eng & Min J* 100:465-6 S 18 '15

See also Gold dredging; Gold milling; Gold mines and mining; Quartz

Gold assaying

Amalgamation tests. W. J. Sharwood. *Am Inst Min E Bul* 104:1659-70 Ag '15; *Excerpts. Met & Chem Eng* 13:927 D '15

Determination of platinum, palladium and gold. A. M. Smoot. *Eng & Min J* 99:700-1 Ap 17 '15

Determining percentage of gold in quartz. *Met & Chem Eng* 12:744 D '14

Gold and silver assaying. S. Fischer, jr. *Met & Chem Eng* 12:771-3 D '14

Rapid method for washing gold beads. W. S. Black. *II Eng & Min J* 98:1141-2 D 26 '14

Gold dredging

Application of electric motors to gold dredges. G. B. Rosenblatt. *II diag Am Inst E E Pro* 38:1165-76 Ag '14; *Abstract. Eng & Min J* 98:739-40 O 24 '14; *Discussion. Am Inst E E Pro* 34:144-54 Ja '15

Dredging and hydraulic operations in the Yukon. *Eng & Min J* 100:481 S 18 '15

Flume-type elevator dredges in Alaska. L. H. Eddy. *II Eng & Min J* 99:1129-30 Je 26 '15

Gold dredging in 1914. R. E. Cranston. *Eng & Min J* 99:100-1 Ja 9 '15

Gold dredging in the Philippines. *II Eng & Min J* 99:685-8 Ap 17 '15

High yield of iditarod dredge. *II Eng & Min J* 99:727-8 Ap 24 '15

Nechl mines (Columbia) Ltd. *Eng & Min J* 99: 244-5 Ja 30 '15

Pato property of Oroville dredging company. W. A. Frichard. *Eng & Min J* 99:231-4 Ja 30 '15

Requirements for prospecting dredging ground in the Yukon. J. A. Macdonald. *Eng & Min J* 99:828-9 My 8 '15

Steam-electric-driven dredge for the Philippines. *II Eng & Min J* 99:898-900 My 22 '15

See also Gold mines and mining

Gold metallurgy

Acid treatment of gold precipitate; abstract. H. A. White. *Met & Chem Eng* 13:118-19 F '15

Chlorination of ores. *diag Met & Chem Eng* 13:505 Ag '15

Concentrating Gold King ores. W. C. Prosser. *flow sheet Eng & Min J* 100:633-4 O 16 '15

Gold metallurgy—Continued

- Concentration formulas. J. E. Clennell. Eng & Min J 100:724-5 O 80 '15
 Concentration formulas. L. Janin, jr. Eng & Min J 100:889 N 27 '15
 Concentration of gold in bottoms in the copper converter; abstract. H. F. Collins. Met & Chem Eng 13:446 JI '15
 Electric furnace for gold refining at the Alaska-Treadwell cyanide plant. W. P. Lass. II diag Am Inst Min E Bul 103:1443-7 JI '15; Same. Met & Chem Eng 13:566-7 S 1 '15; Excerpt (Electric precipitate-melting furnace) Eng & Min J 100:270-1 Ag 14 '15; Abstract. Eng M 50:456 D '15; Discussion. Am Inst Min E Bul 103:2456-8 D '15
 Flotation in gold metallurgy. W. B. Blyth. Met & Chem Eng 13:308 My '15
 Gold precipitation on paper. D. Lay. Eng & Min J 100:276-7 Ag 14 '15
 Metallurgical practice in the Witwatersrand district, South Africa. F. L. Bosqui. diags Am Inst Min E Bul 101:997-1032 My '15; Abstract. Met & Chem Eng 13:925-7 D 1 '15; Discussion. Am Inst Min E Bul 103:2436-53 D '15
 Metallurgy at the International engineering congress; symposium on gold and silver. Met & Chem Eng 13:721-5 O 15 '15
 Mill and cyanide plant of Chiksan mines, Korea. C. W. De Witt. II plan Am Inst Min E Bul 101:931-6 My '15; Abstract. Met & Chem Eng 13:388 J '15
 Progress in gold and silver metallurgy in 1914. Met & Chem Eng 13:3-5 Ja '15
 Recent Rand metallurgical practice. M. T. Murray. Eng & Min J 99:771-3 My 1 '15
 Refining base bullion. W. S. Mann. Eng & Min J 99:535 Mr 20 '15
 Refining gold by Miller's chlorine process; abstract. R. Pearson. Met & Chem Eng 13:503 Ag '15
 Relative efficiency of various amalgams in the recovery of gold. F. A. Thomson and R. Kefter. Met & Chem Eng 13:387-70 Je '15
 Tonopah plant of the Belmont milling co. A. H. Jones. II diags flow sheet Am Inst Min E Bul 104:1731-58 Ag '15; Abstract. Met & Chem Eng 13:811-12 N 1 '15
See also Cyanide process

Gold milling

- Amador consolidated milling plant, Amador City, Calif. T. S. O'Brien. II flow sheet Eng & Min J 100:255-7 Ag 14 '15
 Crushing and grinding. L. D. Mills and M. H. Kuryla. Met & Chem Eng 13:721-2 O 15 '15
 Gold milling in California—a comparison. L. A. Palmer. II diag Met & Chem Eng 13:617-24 S 15 '15
 Grinding ore for cyanidation; a suggested modification for all sliming practice. E. S. Pettis. Met & Chem Eng 13:910 Ja '15
 New mill at Elko Prince mine, Midas, Nevada. Eng & Min J 100:474 S 18 '15
 Tonopah plant of the Belmont milling co. A. H. Jones. II diags flow sheet Am Inst Min E Bul 104:1731-58 Ag '15; Abstract. Met & Chem Eng 13:811-12 N 1 '15

Gold mines and mining

- Ancient gold mining in East Africa; extracts from Diodorus the Sicilian. A. B. Coll. Eng & Min J 99:1041-2 Je 12 '15
 Cost of an ounce of gold. P. E. Barbour. Eng & Min J 100:49-50 JI 10 '15
 Gold recovery at placer mines. D. F. Carver. II Eng & Min J 100:472-3 S 18 '15
 Opportunity in placer mining. C. Hartley. Eng & Min J 99:185-8 Ja 28 '15
 Tonopah in 1914. F. Bradshaw. Eng & Min J 99:154-5 Ja 16 '15
See also Gold dredging; Hydraulic mining

Alabama

- Gold deposits in Alabama. Eng & Min J 99:548 Mr 20 '15

Alaska and the Yukon

- Bagley scraper for gravel mining in Alaska. L. H. Eddy. II Eng & Min J 100:257-8 Ag 14 '15
 Dawson, Nome and Fairbanks. H. I. Ellis. maps Eng & Min J 99:517-20 Mr 20 '15
 Development methods at Fairbanks. H. I. Ellis. II diags Eng & Min J 99:1023-9 Je 12 '15

- Elevating placer tailings with a Hayward bucket. H. I. Ellis. Eng & Min J 100:309-10 Ag 21 '15
 Koyukuk placer-mining district. Eng & Min J 99:1021-2 Je 12 '15
 Prospecting methods at Fairbanks. H. I. Ellis. II diags Eng & Min J 99:305-10 My 8 '15
 Quartz mining in Fairbanks district, Alaska. Eng & Min J 100:435 S 11 '15
 Shushana mining district. H. I. Ellis. II map Eng & Min J 99:731-3 Ap 24 '15
 Winter mining at Fairbanks. H. I. Ellis. II diags Eng & Min J 100:707-11 O 30 '15
 Yakataga beach placers. A. G. Thompson. II Eng & Min J 99:763-6 My 1 '15

Bolivia

- Gold mining in Bolivia. F. C. Lincoln. II Eng & Min J 99:351-4 F 20 '15

California

- Drift mines of California. J. D. Hubbard. II Eng & Min J 100:887-8 O 23 '15
 Pocket deposits of the Klamath mountains, California. H. G. Ferguson. II maps Econ Geol 10:241-61 Ap '15
 Quartz veins in lamprophyre intrusions. J. F. McLennan. Eng & Min J 99:11-13 Ja 2 '15
 Seneca mining district, California. W. H. Wright. II map Eng & Min J 99:1072-4 Je 19 '15
 With the forty-niners. Eng & Min J 100:831 N 27 '15

Canada

- Kowkash gold district. Eng & Min J 100:595-6 O 9 '15

Chile

- Gold and silver in Chile. M. R. Lamb. II Eng & Min J 99:847-9 My 15 '15

Colombia

- Placers of Antioquia, Colombia. R. W. Perry. II map Eng & Min J 100:595-9 O 9 '15

Colorado

- Tenderfoot Hill, Cripple Creek. Eng & Min J 100:344 Ag 28 '15

Dutch Guiana

- Gold-bearing quartz veins in Dutch Guiana. J. B. Percival. II Eng & Min J 100:511-12 S 25 '15

Nevada

- Developments at Atlanta, Nev. P. W. Meyers. II Eng & Min J 99:641 Mr 20 '15
 Pittsburg-Dolores mining co.'s mill at Rockland, Nevada. E. J. Schrader. II Eng & Min J 99:653-4 Ap 10 '15

New Mexico

- Pinos Altos district, New Mexico. L. L. Wright. II Eng & Min J 99:133-5 Ja 16 '15

Oregon

- Hydraulic mining at Waldo, Ore. W. H. Wright. II Eng & Min J 100:211-14 Ag 7 '15

Quebec

- Gold-bearing gravels of Beauce county, Quebec. J. E. Tyrrell. Am Inst Min E Bul 99:609-20 Mr '15

Russia

- Elderslinsky gold mines. N. T. Truschkoff. II Eng & Min J 99:1017-21 Je 12 '15

Siberia

- Improvements at Lena goldfields. Eng & Min J 99:333-4 F 13 '15

Transvaal

- Mining conditions on the Witwatersrand. W. L. Honnold. diags Am Inst Min E Bul 104:1801-21 As '15
 Mining in the Transvaal in 1914. H. F. Marriott. Eng & Min J 99:131-2 Ja 9 '15
 Mining on the Witwatersrand. II Eng & Min J 100:320-2 Ag 21 '15
 Ore reserves of the Rand. A. C. Key. Eng & Min J 100:139-40 JI 24 '15
 Power supply of the Central mining-Rand mines group. J. H. Rider. II diags Inst E J 53:609-32; Discussion. 53:633-40 My 1 '15

Gold mines and mining—Continued

Victoria

Placer mining in Victoria. Eng & Min J 99: 188 Ja 23 '15

Washington

Gold Bar hydraulic mine, Blewett, H. I. Ellis. diags Eng & Min J 100:878-9 O 23 '15

Gold plating

Gold and platinum plating; practical formulae with instructions for their use. M. Kateridge. Metal Ind n s 13:109-10 Mr '15
Single cell gold plating. F. L. McAloon. Metal Ind n s 12:510 D '14

Gold washing

Rapid method for washing gold beads. E. J. Hall. II Eng & Min J 100:149-50 JI 24 '15

Golden-rod

Volatile oils of the genus solidago. E. R. Miller and J. M. Moseley. Am Chem Soc J 37:1285-94 My '15

Goldfield, Nevada

Goldfield and its present boom. H. C. Cutler. II Eng & Min J 99:221-4 Ja 30 '15

Goldfield Consolidated

Mining costs at Goldfield. Eng & Min J 99: 909 My 22 '15

Golf

Tennis as compared to golf. D. Douglass. Sci Am 113:333 O 30 '15

Golf balls

Flight of a golf ball. Sci Am S 79:158 Mr 6 '15

Golf links

Electric lighting of "court" and "clock" golf courses. M. E. Trimble. II diags Elec W 66: 308 Ag 7 '15

Goltra process

Concentration by the Goltra process: beneficiation of Brown iron ores by means of a current of hot air and properly located screens. W. B. Phillips. Iron Age 94:1148-50 N 13 '14; Abstract. Eng M 48:582-5 Ja '15

Good roads congress, American. See American road builders' association

Good roads convention, Canadian and International. See Canadian and International good roads convention

Good roads show, Sixth

Sixth Good roads show, Chicago, Dec. 14-18. II Good Roads n s 9:80-7 Ja 2 '15

Good roads week

Report on Good roads week at Cornell university. Good Roads n s 9:213-14 My 29 '15

Government employees

Accommodations de luxe for federal valuation engineers. plan Eng Rec 70:898-8 D 26 '14

Canvastown for government employees in New South Wales. II Sci Am 112:479 My 22 '15

Comfort for workers in Washington's government buildings. D. A. Willey. II Sci Am S 78:373-4 D 12 '14

See also Civil service

Government ownership

Discussion on government ownership. Elec Ry J 44:1289-90 D 12 '14

Evils of government ownership. J. Bourne, jr. Elec Ry J 46:707-10 O 9 '15; Same cond. Ry R 57:490-2 O 16 '15

Government-owned dyestuff works in Great Britain. Textile World 48:371-8 Ja '15

Government ownership and municipal ownership condemned: discussion at 15th annual meeting of the National civic federation. Elec R & W Elec'n 65:1142 D 13 '14

Government ownership and the miner. E. L. Bailey. Colliery 36:490-1 Ap '15

Government ownership discussed in Manila. Elec Ry J 46:22-3 JI 3 '15

Governmental versus private enterprise discussed at National civic federation meeting. Elec W 64:1140-1 D 12 '14

Radium situation. W. F. Bleecker. Met & Chem Eng 13:148-5 Mr '15; Abstract. Eng M 49:102-3 Ap '15

See also Government regulation of industry; Municipal ownership; Public service corporations; Railroads and state

Government regulation of industry

Address to National association of cotton manufacturers. A. G. Duncan. Textile

World 49:199-202 My '15

Administration and business men. L. Cromwell. Textile World 49:240-2 My '15

Business and government. E. Root. Ry R 57: 17-19 JI 3 '15

Destructive and constructive regulation of business. R. R. Lounsbury. Am Ind 16:10-13 Ag '15

German cartel policy. O: H. Luken. Eng M 48: 508-16 Ja '15

Government's business. It needs regulation by business men. Ry R 55:746-8 D 19 '14

Right of the states. Ry Age 59:43-4 JI 9 '15

Right of the states which is often overlooked; constitutional duty of federal government to protect from harmful regulation of commerce by sister states. A. P. Thom. Ry Age 59:49-53 JI 9 '15

See also Electric railroads and state; Factory laws; Gas companies—Regulation; Government ownership; Interstate commerce; Interstate commerce commission; Labor laws; Municipal ownership; Public service commissions; Public service corporations—Regulation; Railroads—Rates; Railroads and state; Waterworks—Regulation

Governors, Conference of. See Conference of governors

Governors (machinery)

Analysis of waterwheel-governor effort; abstract. E. D. Searing. Elec W 65:1518-14 Je 13 '15

Blocking up the governor. R. O. Richards. II Power 41:347-8 Mr 9 '15

Compensators for Corliss governors. C: L. Ware. diags Power 42:38-4 JI 20 '15

Corliss governor compensator. J. Stewart. Power 41:415-16 Mr 23 '15

Disturbing actions of a shaft governor; abstract. G. Hamabe. Am Soc M E J 37:124-5 F '15

Double-acting speed controller. II Mach 22:247 N '15

Governing of marine steam turbines. diags Engineer 119:235 Mr 5 '15

Governor-stop control and belt tightener. diags Power 41:8 Ja 5 '15

Governors for motor vehicles. T. Douglas. diags Automobile 32:942-5 My 27 '15

Improved hydraulic governor. II Eng Rec 71: 383-4 Mr 20 '15

Metropolitan S. A. E. discusses aeroplanes and governors. diags Automobile 33:560-3 S 25 '15

One governor controls two waterwheels. II Eng Rec 71:372-3 Mr 20 '15

Pendulum governor compensator. B: S. Hanson. diags Power 42:488-9 O 5 '15

Prize-winning regulating device. II diags Power 40:800-1 D 22 '14

Pros and cons of speed governors. Horseless Age 35:705 My 26 '15

Grace, Eugene G.

Future leaders of the steel industry. C. J. Stark. por Iron Tr R 55:1213-14 D 31 '14

Grade crossing elimination

Adjustment of the consequential damages at the Tower Grove crossings. L. R. Bowen. Assn Eng Soc J 55:116-21 O '15

Boston & Albany railroad improvements at Worcester, Mass. L. G. Morphy. II Boston Soc C E J 1:481-98 N '14

Chaos in apportioning the cost of grade crossing elimination. Eng Rec 71:319 Mr 13 '15

Chief engineers discuss grade-crossing law and cost distribution. Eng Rec 71:455-6 Ap 10 '15

Costs of bridges for grade-crossing elimination. C. N. Bainbridge. Eng Rec 71:770 Je 19 '15

Difficult grade crossing elimination in Albany, N. Y. II diags plan Ry Age 59:961-3 N 19 '15

Eliminating railway grade crossings in Los Angeles. Eng N 74:355 Ag 19 '15

Eliminating the Tower Grove grade crossing at St. Louis. II diags plan Eng N 74:52-5 JI 8 '15

- Grade crossing elimination—Continued**
 Elimination of grade crossings; apportionment of cost; manner of obtaining elimination; construction. L. B. Reilly. Boston Soc C E J 2:135-48 Ap '15
 Elimination of the Tower Grove crossings, St. Louis, Mo. S. L. Womson. II diag plans Assn Eng Soc J 55:95-115 O '15; Same cond. Ry Age 59:799-802 O 29 '15; Same cond. Eng Rec 72:627-9 N 20 '15
 Grade crossing eliminated without halting traffic. plan Eng Rec 71:722 Je 5 '15
 Grade crossing elimination. Ry Age 59:634-5 O 8 '15
 Grade-crossing law and its effect on grade-crossing elimination. C. W. Stark. Eng Rec 71:327-9 Mr 13 '15
 Needless grade separation required of railroads. C. E. Smith. Eng Rec 71:674 My 29 '15
 Pennsylvania improvements through Piqua, Ohio; new station and second track on revised grade, eliminating eight street grade crossings. II plans Ry Age 68:1003-6 My 14 '15
 Study of grade crossing elimination in cities. C. N. Bainbridge. diag Ry Age 59:45-8 JI 9 '15
 Substantial crossing barrier. II Ry Age 59:105 JI 16 '15
 Track elevation on the Nickel Plate railroad at Chicago. II diag map Eng N 74:888-91 N 4 '15
See also Railroads—Track depression; Railroads—Track elevation
- Grade crossings**
 Grade crossings in Canada. Ry Age 57:1180 D 25 '14
 Protection of grade crossings. II Ry R 57:531-2 O 23 '15; Same cond. Ry Age 59:703-4 O 23 '15
 Track crossing on curve with super-elevation. plan Eng N 72:1133 D 3 '14
See also Grade crossing elimination; Railroads—Crossings; Railroads—Track elevation
- Grading**
 Conditions determining maximum grades and methods and cost of road grading in West Virginia. A. D. Williams. Eng & Contr 43:16-17 Ja 6 '15; Excerpt (Cost of grading and excavating). Concrete Cem 5:267-8 D '14
 Grading machine loads nine two-yard wagons in ten minutes. II Munic Eng 49:124-5 S '15
 Power road machinery with special reference to hauling and earth road grading. N. De Wind. II Eng & Contr 43:83-5 Ja 27 '15
 Preliminary estimating of grading simplified. J. M. Brown. Eng Rec 71:810-11 My 15 '15
 Street and road grading, 1915; tabulation. Munic Eng 48:257-60 Ap '15
See also Railroads—Grade; Roads—Grade
- Grahamite**
 Variations of the physical characteristics of a petroleum residuum with increasing percentages of grahamite. H. Rossbacher. J Ind & Eng Chem 7:205-6 Mr '15
- Grain**
 Accuracy of grain in weights. F. C. Maegly. Ry Age 58:888-9 Ap 23 '15
 Acid ratio: a new method for determining the proteolytic strength of germinated grain in technical analysis. C. A. Nowak. J Ind & Eng Chem 7:858-9 O '15
 Apparatus for cleaning, separating and delivering grain. II diag Engineer 119:338 Ap 2 '15
 Western road advance hearing. Ry Age 58: 888-9 Ap 30 '15
- Grain dust**
 Cereal dust explosions. D: J. Price. Colliery 35:871-2 JI '15
 Explosibility of grain dusts. D: J. Price and H. H. Brown. Sci Am S 78:368 D 5 '14
 Explosion leav. grain elevator practically intact. II Eng Rec 72:119-20 JI 24 '15
- Grain elevators**
 Design, construction and detailed costs of the sliding forms for a reinforced concrete grain storage house. W: W. Hay. Eng & Contr 44:304-5 O 20 '15
 Electric drive for grain elevators. Elec R & W Elec'n 66:378 F 27 '15
- Electricity in grain elevators. H. E. Stafford. II diag Am Inst E E Pro 34:1087-1103 Je '15; Abstract. Elec W 66:90 JI 10 '15
 Pneumatic grain elevating plant. II diag (supp) Engineer 120:361, 366 O 15 '15
 Righting a twenty-thousand-ton grain elevator. II Sci Am 111:524 D 26 '14
 Righting the tilted grain elevator of the Canadian Pacific Ry. II Concrete Cem 6:196 Ap '15
 Settlement of two grain elevators. Eng N 73: 872-3 My 6 '15
- Grand Trunk Pacific railway**
 Plan and profile of the western section. map Eng N 74:245 Ag 5 '15
- Grandstands**
 Cast-iron standards for ball-park seats. diag Eng N 74:511 S 9 '15
 Grandstand at Sheepshead Bay speedway, New York. II diag Eng Rec 72:411-12 O 2 '15
 Large steel grandstand for automobile race-track, Sheepshead Bay, N. Y. II Eng N 74: 655 S 30 '15
 National league ball park at Boston, Mass. II diag Eng N 74:874-7 Ag 19 '15
 National league baseball park of reinforced concrete at Boston. W. B. Conant. II diag Concrete Cem 7:53-5 Ag '15
- Granite**
 Boulder batholith of Montana. P. Billingsley. diag maps Am Inst Min E Bul 97:31-47 Ja '15
 Heating tests, and the light they throw on the cause of the disaggregation of granite. W. A. Tarr. Econ Geol 10:348-67 Je '15
- Granite blocks**
 Manufacture of granite paving blocks. II Eng N 73:376-81 F 25 '15
- Granite pavements. See Pavements, Granite**
- Grape juice**
 New discovery in the American wine industry; concentrating grape juice by freezing. Sci Am 113:141 Ag 14 '15
- Graphic methods**
 Generalized form of Hooke's law. E. R. Hedrick. Eng N 74:542-3 S 16 '15
 Graphic method for speed-time and distance-time curves. E. C. Woodruff. Am Inst E E Pro 33:1689-92 N '14; Discussion. Am Inst E E Pro 34:2804-46 N '15; Abstract. Elec Ry J 44:1155-6 N 21 '14
 Graphic methods for presenting data. W. C. Brinton. II Eng M 47:851-66, 817-29; 48:73-85, 229-41, 396-406, 551-68 Ag '14-Ja '15
 Graphics in maintenance work. Elec Ry J 46: 947-51 N 6 '15
 Graphs as an aid to the plumber and fitter. H. Whitehead. Dom Eng 70:136-8 Ja 30 '15
 Graphs, charts and statistics as aids to administration. E. C. Stothart. Elec Ry J 46: 665-7 O 2 '15
 Joint committee on standards for graphic presentation; preliminary report. Am Soc M E J 37:vii-ix Ag '15; Same. Am Inst Min E Bul 106:ix-xii O '15; Same. J Ind & Eng Chem 7:894-5 O '15; Same cond. Eng Rec 72:633 N 20 '15
 Nomographic charts for Kutter's formula. G. S. Coleman. Eng Rec 72:489 O 16 '15
 Practical applications of the principles of statistics. C: S. Ruffner. Assn Eng Soc J 53: 264-80 D '14
 Simplified method of determining cost of coal per 1000 lb. of steam; chart. W. H. Schott. Elec W 66:754-6 O 2 '15; Same. Power 42:466-8 S 28 '15; Same. Eng & Min J 100:636-8 O 16 '15
 Solar declinations computed by graphic method. R. R. V. Reynolds. Eng Rec 72:160 Ag 7 '15
 Solution of pulp problems by graphic methods. W. J. McCauley. Eng & Min J 100:98-100 JI 17 '15
- Graphic statics**
 Design methods in concrete construction. J. Cochran. Concrete Cem 6:83-5 F '15
 Graphical analysis of arches with fixed ends greatly simplified. C. S. Whitney. Eng Rec 72:324-6 S 11 '15

Graphic statics—Continued

- Graphical method for designing simple reinforced concrete beams and data for designing simple, double-reinforced and T-beams. R. R. Laffer. Eng & Contr 43:239-42 Mr 17 '15
- Method for determining two-hinged arch reactions. C. S. Whitney. Eng & Contr 44:123-4 Ag 18 '15
- Nomographic charts for simple beam design. C. D. Conklin, jr. Eng Rec 71:309 Je 26 '15
- Nomographic solutions for formulas of various types. R. C. Strachan. Eng Rec 71:307-9 Je 26 '15
- Reinforced-concrete conduit analysis simplified by theory of displacements. C. S. Whitney. Eng Rec 72:486-8 O 16 '15
- See also Girders; Mechanical drawing; Steel construction; Strains and stresses

Graphite

- Can profits be made in American graphite? J. Bartley. Iron Age 96:86-8 Jl 8 '15
- Defense of natural graphite lubricant. Horseless Age 35:127 Ja 27 '15
- Feeding graphite to boilers. C. N. Wiley. diag Power 41:616-17 My 4 '15
- Graphite in boilers. W. Weaver. Power 41:131-2 Ja 26 '15
- Phenix oil and graphite cylinder lubricator. diag Power 41:780-1 Je 8 '15
- Silica-graphite paint. Iron Tr R 57:364 Ag 19 '15
- Uses of graphite. Metal Work 54:463 O 8 '15
- Various forms of graphite. Sci Am S 80:25 Jl 10 '15

Grates

- Air-space area of grates. R. T. Strohm. Elec W 65:103 Ja 9 '15
- German progress in steam boiler firing; abstract. Pradel. diag Am Soc M E J 37:185-7 Mr '15
- Hopes pyramid dumping and stationary grates. Il Power 42:156-7 Ag 3 '15
- Making a herringbone grate pattern. E. L. Scullioe. diag Foundry 43:184 My '15
- Placzek traveling grate. diag Am Soc M E J 37:118 F '15
- Pollon furnace grate. diag Power 41:499 Ap 13 '15
- See also Locomotive grates

Grates (fireplaces). See Fireplaces**Gravel**

- Centrifugal dredging pump applied to production of sand and gravel. Il Concrete Cem 7:191-2 N '15
- Cost of hydraulic sand and gravel mining. R. J. Borhek. Eng & Contr 43:573-4 Je 30 '15
- Dragline cableway is an effective tool for sand and gravel plants. Il Eng Rec 71:716-18 Je 6 '15
- Economical operation of a gravel ballast pit. Ry Age 59:117-19 Jl 16 '15
- Electricity in sand and gravel plants. Il Elec R & W Elec'n 87:599-602 O 2 '15
- Equipment and operation of plant at Waukesha, Wis. S. E. Bates. Il diag Concrete Cem 7:165-8 N '15
- Gravel and sand plants; stationary and portable screening and washing plants. Il diag Munic J 38:449-50 Ap 1 '15
- Gravel dredge which delivers graded materials. A. Gottschalk. Il Eng Rec 70:562 D 12 '14
- Gravel washing plant with unique features. Pontiac, Mich. Il Concrete Cem 7:168-70 N '15
- Hoist on revolving headframe operates dragline. Il diag plan Eng Rec 71:742-3 Je 12 '15
- How the problem, What is gravel? might be solved. S. P. Sears. Eng N 73:180-1 Ja 23 '15
- Large floating gravel-washing plant in Indiana. Il Eng Rec 70:667-8 D 19 '14
- Large gravel-washing plant. Akron, O. Il Eng N 73:1225 Je 24 '15; Eng & Contr 43:526 Je 9 '15
- Notes on screens for gravel washing and screening. W. H. Wilms. diag Eng N 73:440-1 Mr 4 '15; Same cond. Ind Eng 15:80-1 Ag '15
- Portable gravel screening and washing plant. M. D. Campbell. plan Ry Age 59:345-6 Ag 20 '15

Stripping of gravel pits by hydraulic methods. W. H. Wilms. diag Ry Age 58:1430-3 Je 18 '15

Use and tests of unscreened gravel: Illinois state highway department. C. Older. Il Eng N 72:1204-5 D 17 '14

Wearing tests for sand and gravel. F. L. Roman. Good Roads n s 9:186-7 My 1 '15

See also Concrete—Aggregate

Gravel roads. See Roads, Gravel**Gravitation**

Modern theories of gravitation. Sci Am S 79:317 My 15 '15

See also Specific gravity

Graywacke

Composition of graywacke. Eng & Min J 100:597 O 9 '15

Grease traps. See Plumbing—Traps**Greses. See Lubrication and lubricants; Oils and fats****Great Britain**

See also Railroads—Great Britain

Admiralty inventions board

Board of inventions. Engineer 120:90 Jl 23 '15

Board of trade

Commercial organizations in the United Kingdom with a description of British manufacturers' and employers' organizations. A. J. Wolfe. U S Bur For & Dom Com 102:29-36 '15

Commerce

British engineers' association; third meeting, Manchester. Engineer 118:578-9 D 18 '14

Commercial organizations in the United Kingdom with a description of British manufacturers' and employers' organizations. A. J. Wolfe. U S Bur For & Dom Com 102:1-53 '15

Export trade to the overseas dominions. Engineer 119:333-5 Ap 16 '15

Foreign mineral trade of Great Britain. Eng & Min J 99:442 Mr 6 '15

Institution of mechanical engineers: address. W. C. Unwin. Engineer 119:418 Ap 23 '15

Commercial policy

Plea for scientific and technical commissioners. W. P. Digby. Inst E E J 53:799-801 Je 1 '15; Excerpts. Met & Chem Eng 13:502 Ag '15

Industries and resources

Presidential address before Institution of civil engineers. A. Ross. Engineer 120:430-1 N 6 '15

Law

Commercial laws of England, Scotland, Germany and France. A. J. Wolfe and E. M. Borchard. U S Bur For & Dom Com 97:9-23 '15

Manufactures

British engineers' association; third meeting, Manchester. Engineer 118:578-9 D 18 '14

Navy

British battle-fleet: its inception and growth throughout the centuries by F. T. Jane. Review. Engineer 118:528-9 D 4 '14

Our navy. Engineer 119:185 F 19 '15

Submarine chasers for the British navy. Il Sci Am 113:424 N 13 '15

Great Lakes

Buffalo sewage disposal and water-supply in relation to the pollution of the Great Lakes. Eng N 73:3-9 Ja 7 '15

See also Welland ship canal

Great Northern railway

Additions and betterments of the Great Northern Ry. Ry R 56:11-13 Ja 2 '15

Greece

Kavala, the debatable land. Sci Am S 80:312-13 N 18 '15

Greek architecture. See Architecture, Greek**Greek language**

How we got our alphabet. W. Rice. Inland Ptr 54:689-90 F '15

Greenhouses

- Construction of a movable greenhouse. *Il Bldg Age* 37:69-71 Ag '15
 Design of greenhouse heating plants. P. McKee. *Metal Work* 83:806; 84:44-6, 387 Je 4, JI 9, S 10 '15
 Features of the modern greenhouse. J. Y. Dunlop. *Il Bldg Age* 37:38-41 O '15
 Heating equipment for large greenhouse. G. W. Loeber. *Il diags Metal Work* 83:66-70 Ja 1 '15
 Heating greenhouses by hot water. G. W. Loeber. *diags Dom Eng* 70:399-401; 71:31-3, 124-6, 244-5, 362-6 Mr 27, Ap 10, My 1, 29, Je 26 '15

Grenades

- Hand grenades. E. C. Crossman. *Il Sci Am* 112:427 My 8 '15

Grenfell, Wilfred Thomason, 1865-

- Dr. Grenfell's missions in Labrador. H. H. Heath. *Il Inland Ptr* 55:53-4 Ap '15

Grinding and polishing

- Canvas polishing wheels. B. H. Divine. *Metal Ind n s* 13:449 N '15
 Eye protection for grinders and machinists. H. W. Davis. *Il Mach* 21:570-1 Mr '15
 Form grinding. *Il diags Mach* 21:883-92 JI '15
 Grinding and distribution of tools. Ry Age (Mech ed) 89:415-16 Ag '15
 Grinding and polishing stove plate trimmings. F. W. Hobbs. *Foundry* 43:236-7 Je '15
 Grinding cone pulleys at the Norton plant. H. W. Ault. *Il diags Mach* 22:32 S '15
 Grinding crowned pulleys. H. W. Dunbar. *Il Mach* 21:893-4 JI '15
 Grinding of metals; abstract. J. Horner. *Ind Eng* 15:59 F '15
 Grinding shrapnel shells on Norton grinding machines. *Il diags Mach* 21:835-7 Ap '15
 Grinding street car wheels under the car. *Il Mach* 21:462 F '15
 Grinding vs. milling. J. Mahon. *diag Mach* 21:315 D '14
 Institution of mechanical engineers, Manchester meeting, 1915. *Engineer* 120:417 O 29 '15
 Internal grinding machines used, methods of handling and examples of work. D. T. Hamilton. *Il diags Mach* 21:983-98 Ag '15
 Laps and lapping; abstracts. W. A. Knight and A. A. Case. *diags Am Soc M E J* 37:451-6 Ag '15; *Iron Tr R* 57:24-6 JI 1 '15; *Mach* 21:976-8 Ag '15; *Discussion. Am Soc M E J* 37:456-8 Ag '15
 Metallographic grinding and polishing machine. *Il Iron Age* 95:1164 My 27 '15
 New method of polishing diamond dies. *diag Mach* 21:279 D '14
 Plain cylindrical external grinding. D. T. Hamilton. *Il diags Mach* 21:861-82 JI '15
 Polishing and buffing. B. H. Divine. *Metal Ind n s* 13:419-20 O '15
 Polishing and plating room practices reviewed. F. W. Hobbs. *Metal Ind n s* 13:414-15 O '15
 Polishing machines made by the St. Louis machine tool co. *Il Metal Ind n s* 13:386 S '15
 Polishing wheels. W. C. Gold. *Il Metal Ind n s* 13:15-16, 103-4, 270-80 Ja, Mr, JI '15
 Preparation of metal specimens for metallographic tests. *Il Met & Chem Eng* 13:400-1 Je '15
 Progress in machine shop methods. E. R. Norris. *Il Iron Tr R* 57:747-50 O 14 '15
 Richards polishing machine. *Il Metal Ind n s* 13:386 S '15
 Surface and cylindrical grinding: operating conditions and rates of production for typical operations. R. Holmes. *Il diags Mach* 21:283-5 D '14
 Surface grinding; methods of grinding plane surfaces on reciprocating and rotary surface grinding machines. D. T. Hamilton. *Il diags Mach* 22:33-42 S '15
 Theory of grinding. H. H. Asbridge. *Engineer* 120:440 N 5 '15
 Theory of grinding. J. J. Guest. *Engineer* 120:394-5 O 22 '15; *Abstract. Am Soc M E J* 37:658-9 N '15
 Tumbling barrel ("Jim Butler") work. T. C. Eichstaedt. *Metal Ind n s* 13:388-9 S '15
 Two-belt rotary polishing machine. *Il Iron Age* 95:448 F 25 '15
 See also Abrasives; Emery wheels; Grinding wheels; Machine shop practice

Grinding machines

- Attachment for grinding curved knives. *Il diag Iron Age* 95:616 Mr 18 '15
 Bealy wide-face ring wheel grinder. *Il diag Mach* 22:242-3 N '15
 Boring and grinding attachment. *Il Iron Tr R* 56:1106 Je 3 '15
 Brown & Sharpe plain grinding machine. *Il diag Mach* 21:675-6 Ap '15
 Car wheel grinder. *Il Ry Age (Mech ed)* 89:143-4 Mr '15
 Carwheel grinding machine. *Il Iron Age* 94:1485 D 31 '14
 Cincinnati rifle barrel grinding machine. *diags Mach* 22:250-1 N '15
 Combination precision internal grinder. *Il Iron Tr R* 56:1118 Je 3 '15
 Diamond shear grinding machine. *Il Mach* 21:754-5 My '15
 Disk and surface grinding machine by the Walker grinder company, Worcester, Mass. *Il Iron Age* 94:1489 D 31 '14
 Electric grinder for wood working shop. *Il Iron Tr R* 57:898 N 4 '15
 Electric rail grinder. *Il Sci Am* 113:49+ JI 10 '15
 Face grinding machine with magnetic chuck. *Il Iron Age* 95:948 Ap 29 '15
 Ford-Smith shrapnel shell grinder. *Il Mach* 22:68-9 S '15
 Gardner heavy disk grinding machine. *Il Iron Age* 96:480 Ag 26 '15; *Iron Tr R* 57:444 S 2 '15; *Mach* 22:65-6 S '15
 Grinding, a manufacturing process; a plea for the substitution of grinders for lathes on certain classes of work. H. W. Dunbar. *Iron Tr R* 56:917-18 My 6 '15
 Grinding large shells and projectiles. C. O. Smith. *Il diags Iron Age* 95:445-7 F 25 '15
 Grinding practice. C. G. Smith. *Mach* 21:469 F '15
 Hand-operated hole grinding machine. *Il Iron Age* 95:511 Mr 4 '15
 Heavy grinding machine: use of a special gear box with a ball clutch to vary speeds and feeds. *Il Iron Age* 94:1528-7 D 31 '14
 Inexpensive wheel grinder. *diags Elec Ry J* 45:1175 Je 19 '15
 Inserted-tooth saw grinding machine. *Il Iron Age* 96:467 Ag 26 '15
 Internal grinding machines used, methods of handling and examples of work. D. T. Hamilton. *Il diags Mach* 21:983-98 Ag '15
 J. N. Lapointe broach grinder. *Il Mach* 21:513 F '15
 Large crank-shaft grinding machine. *Il diag Engineer* 120:178 Ag 20 '15
 Machinery for the production of projectiles. *Il diags Engineer* 120:278 S 17 '15
 Modern grinding machines. *Il Mach* 21:415-16 Ja '15
 New plain grinding machine. *Il diag Iron Age* 95:734-5 Ap 1 '15
 Persons-Arter model A rotary surface grinder. *Il diags Mach* 21:983-6 JI '15
 Persons-Arter rotary surface grinding machine. *Il Iron Age* 96:11 JI 1 '15
 Plain and surface grinding machine. *Il Iron Age* 96:1240 N 26 '15
 Plain cylindrical external grinding. D. T. Hamilton. *Il diags Mach* 21:861-82 JI '15
 Portable cylinder grinding machine. *Il Iron Age* 95:400 F 13 '15
 Portable pneumatic grinding machine. *Il Iron Age* 96:83 JI 3 '15; *Iron Tr R* 57:4 JI 1 '15
 Precision grinding machine. *Il Iron Tr R* 56:284-5, 287 F 4 '15
 Rivett internal grinding machine. *Il Mach* 21:598-9 Mr '15
 Self-contained grinding machine. *Il Ry Age (Mech ed)* 89:91-2 F '15
 Special grinding pattern shop machine. *Il Iron Age* 96:198 JI 22 '15
 Special-purpose grinding machine: standard type of the Norton grinding company. *Il Iron Age* 95:86-7 Ja 7 '15
 Surface grinding; methods of grinding plane surfaces on reciprocating and rotary surface grinding machines. D. T. Hamilton. *Il diags Mach* 22:33-42 S '15
 Tolford ball grinding machine. C. L. Lucas. *Il diags Mach* 21:311-14 D '14
 Upright surface grinding machine. *Il Iron Age* 96:7 JI 1 '15

Grinding machines—Continued

Walker rotary disk and surface grinder. *Il* diags Mach 21:417-19 Ja '15
Wide face ring wheel grinding machine. *Il* Iron Age 96:972 O 28 '15

See also Grinding wheels

Safety devices

Abrasive wheel safety code. *Iron Tr R* 56:171-3 Ja 21 '15

Code for the use of abrasive wheels. *Iron Age* 96:216-17 Ja 21 '15

Grinding safety devices. *C: G. Smith. Iron Age* 94:1892 D 17 '14

Grinding wheel protection. *El. T. Spidy. diags Ry Age (Mech ed)* 89:249 My '15

How state laws compel removal of dust. *H. C. Estep. Il Foundry* 48:43-51 F '15; *Same. Iron Tr R* 56:416-22 F 25 '15

Proposed grinders' safety code. *Mach* 21:460-2 F '15

Safety code for abrasive wheels. *Ind Eng* 15:23-4 Ja '15

Grinding wheels

Grinding wheel truing devices; attachments for holding and methods of applying diamond tools. *D. T. Hamilton. Il Mach* 22:220-3 N '15

Grinding wheels; history and description of various abrasive compounds. *W. C. Gold. Metal Ind n s* 13:450-2 N '15

How grinding wheels operate. *G. I. Alden. Iron Tr R* 55:1141-2 D 17 '14

Operation of grinding wheels in machine grinding. *G. I. Alden. diags Mach* 21:307-9 D '14;

Abstract. *Am Soc M E J* 37:16-17 Ja '15

Practical details about grinding. *C: G. Smith. Iron Tr R* 57:443-4 S 2 '15

Selecting grinding wheels for foundry use. *C. F. Dietz. Foundry* 43:115-20 Mr '15; *Same. Iron Tr R* 57:314-18+ Ag 12 '15

Selection of grinding wheels; abrasives, processes of manufacture, bonds—choosing grade and grain for grinding under varying conditions. *D. T. Hamilton. Il diags Mach* 22:118-29 O '15

Selection of wheels for cylindrical grinding. *C. H. Norton. Mach* 21:368 Ja '15

Why your grinding wheel breaks. *Foundry* 43:104 Mr '15

See also Emery wheels

Safety devices

See Grinding machines—Safety devices

Grizzlies

New types of grizzlies. *Il Eng & Min J* 99:241-2 Ja 30 '15

Rockers and grizzly mining on the north Saskatchewan. *J. A. Macdonald. diags Eng & Min J* 100:187-8 J1 31 '15

Groins

Coast erosion and protection on Long Island and New Jersey. *G. O. Case. Il diags Eng N* 74:439-42 S 2 '15

Design suggested for shore-protection works on the New Jersey coast. *B. F. Cresson, Jr. diags Eng N* 73:904-5 My 6 '15; *Eng Rec* 71:547-8 My 1 '15

Ground anchor

Coghlin ground anchor. *Il Ry R* 56:182 Ja 23 '15

Ground temperature.

See Earth temperature

Grounding.

See Electric distribution

Group insurance.

See Insurance, Life

Grouting

Astoria tunnel under the East river for gas distribution in New York city. *J: V. Davies. Il map Am Gas Light J* 103:226-30, 244-7+ O 11-18 '15

Cutoff-wall and rock grouting at the Milton reservoir embankment. *Il diags map Eng N* 73:468-71 Mr 11 '15

Deep tunnel completed in unsound rock solidified by extraordinary grouting. *Il Eng Rec* 72:417-19 O 2 '15

Flooding and recovery of the Astoria tunnel. *El. Carpenter. Il diags Eng N* 74:673-8, 736-41 O 7-14 '15

Granite block repaving in Worcester. *C. D. Pollock. Il Munic J* 39:541-3 O 7 '15

Grouting a leaking tunnel. *Il Eng Rec* 71:60 Ja 1 '15

Grouting as a method of engineering construction. *Eng & Contr* 43:21-3 Ja 13 '15

Grouting equipment for city tunnel, Catskill aqueduct. *W. E. Spear. diags Eng N* 73:894 My 6 '15

Grouting foundations for gravity-section dam. *H. S. Johnston. diags Eng Rec* 70:650-1 D 12 '14

Grouting or cushioning stand pipe bases; abstracts. *C: W. Sherman. Munic J* 39:812 N 25 '15; *Eng & Contr* 44:410-11 N 24 '15

March-Capron mixer for concrete grouting. *Il Munic J* 39:160 J1 29 '15

Method and cost of grouting a water bearing fissure and seamy rock in sinking a mine shaft. *J. R. Reigart. diags Eng & Contr* 44:353-5 N 3 '15

Methods and costs of grouting brick pavements. *diags Eng & Contr* 44:302-4 O 20 '15

Methods and costs of grouting granite block pavement. *Eng & Contr* 44:350-1 N 3 '15

Guarantees

Litigation courted by express guarantees. *El. J. Buckley. Metal Work* 83:212 Ja 29 '15

Guard rails

B. R. & P. standard guard rail. *diag Ry Age* 58:1072 My 21 '15

Frog guard rails of special design. *Il diags Eng N* 72:1292-3 D 31 '14

New cast-steel clamp for guard-rails. *diag Eng N* 72:1161 D 10 '14

Guard rails (for highways)

Comparative costs of guard rail and wide fills on highways. *diags Eng N* 74:79-80 J1 8 '15

Modification of the New York standard guard rail providing concrete posts. *H. E. Smith. diags Eng & Contr* 43:106 F 3 '15

Patented concrete guard rail. *diag Eng N* 74:1056 N 25 '15

Guerrilla (warship)

Fight between the Constitution and the Guerrière. *Il Sci Am* 113:14-15 J1 3 '15

Gulfford, Baltimore, Md.

Architecture

Houses of Gulfford, Baltimore, Md.; views and plans. *Brickb* 24:223-7, pl 124-35 S '15

Gulf of Mexico

Cause and prevention of storm erosion on Gulf coast. *G. O. Case. Il Eng N* 74:1072-5 D 2 '15

Gulf stream

Causes that govern its course, and its effect on climate. *Sci Am S* 78:383-4 D 12 '14

Gulflight (tank ship)

Repairing the Gulflight. *Il Sci Am* 113:318 O 9 '15

Torpedo damage to the oil tanker Gulflight. *Il Int Marine Eng* 20:520-1 N '15

Gums and resins

Contributions of the chemist to the naval stores industry. *J: E. Teeple. J Ind & Eng Chem* 7:981-2 N '15

Fossil resins in coal. *Colliery* 35:521-2 My '15

Naval stores industry. *A. W. Schorger and H. S. Betts. diags Il pls maps U S Agric Bul* 229:1-58 '15

Pontianak (Jellutong) rubber resin. *C. Ellis and A. A. Wells. J Ind & Eng Chem* 7:747-50 S '15

Synthetic resins: non-inflammable substitutes for celluloid and rubber. *Il Sci Am* 112:36 Ja 23 '15

Use of ammonium hydroxide for the extraction of rosin from wood. *El. K. Benson and H. N. Crites. J Ind & Eng Chem* 7:918-20 N '15

See also Balata

Gun. See Guns

Gun carriages

Rapid-fire field-gun carriages; development of devices for absorbing the shock of recoil. *diags Eng M* 50:118-19 O '15

Gun cotton

Manufacture of gun cotton. *L: J. Matos. Textile World* 49:508-8 Ag '15

Gun metal

Influence of various temperatures on the properties of admiralty gun metal; abstract. *A. Campion and J: G. Longbottom. Am Soc M E J* 27:356-7 Je '15

- in powder. See Gunpowder
- In-primers**
Gun-primers and detonators. Sci Am S 80:35 J1 17 '15
- un recoil**
Machining recoil cylinders for big guns. H. B. McDermid. diags Mach 21:1010-11 Ag '15
Method for calculating that part of the recoil momentum of a gun which is due to the action of the gases after the projectile leaves the muzzle. W: S. Franklin. J Fr Inst 179:559-77 My '15
Rapid-fire field-gun carriages; development of devices for absorbing the shock of recoil. diags Eng M 50:118-19 O '15
Recoil mechanism of modern guns. Il Sci Am 118:296-7 O 2 '15
- unite**
Concrete lining for steel bunkers. Il Power 40: 812 D 8 '14
Experience with cement guns in levee revetment. W. G. Caples. Eng & Contr 44:397-8 N 17 '15
Gunite casing on wood shaft lining. S. Royce. Il diags Eng & Min J 98:409-11 F 27 '15
Gunite concrete encasement. diags Ry R 58: 129-30 Ja 23 '15
Interlining a timber and steel lined shaft with a cement gun. S. Royce. diags Eng & Contr 44:278 O 6 '15
Preventing corrosion of steel substructure of the Cortlandt street ferry terminal of the Pennsylvania in New York city. Ry Age 58: 852 Ap 16 '15
- gunnery**
Accuracy of gun fire. H. J. Jones. Engineer 120:289-40 S 10 '15
Gunnery aboard ships. A. Keller. Sci Am S 80:309 N 13 '15
Rifles and mortars. Il diags Sci Am 111:472-3 D 5 '14
See also Artillery; Guns; Projectiles; Range finding; Target practice
- Gunning-copper method**
Comparison of the Gunning-copper method with the Kjeldahl-Gunning-Arnold method for the determination of nitrogen. O. F. Jensen. J Ind & Eng Chem 7:38-9 Ja '15
- Gunpowder**
Old-fashioned gun powders. Sci Am 113:415-16 N 6 '15
What happens when gunpowder explodes. Sci Am S 79:246 Ap 17 '15
See also Ammunition; Smokeless powder
- Guns (ordnance)**
Actual and theoretical ranges of the United States coast defense guns. Sci Am 112:472 My 22 '15
British quick-firing field gun. diags Sci Am S 80:133 Ag 28 '15
Cost of munitions of war. Mach 21:405 Ja '15
European war from an engineer's standpoint. J. B. C. Kershaw. Il Eng M 49:43-50 Ap '15
French howitzers. Il diags Engineer 118:563 D 11 '14
Gun and the aeroplane. B. Young. Il Sci Am S 80:276 O 30 '15
Increasing the range of our coast defense guns. Sci Am 113:159 Ag 21 '15
Lesson of the Queen Elizabeth. Sci Am 112: 263 Mr 20 '15
Lewis light magazine gun. Sci Am 112:131 F 6 '15
Machine-gun and its development. N. Truslow. Il Sci Am 113:464-1 N 27 '15
Making of large guns. diags Sci Am S 79:115 F 20 '15
Maxim machine gun and its construction. Il Sci Am 112:180 F 8 '15
Range of a quick-firing field gun. Il Sci Am 113:93 J1 31 '15
Solxante quinze, The. diags Engineer 119:77-8 Ja 22 '15
Wire-winding big guns for Uncle Sam. C. L. Lucas. Il Mach 21:529-31 Mr '15; Same. Sci Am S 79:332-3 My 23 '15
See also Ammunition; Artillery; Gun recoil; Mortars (ordnance); Naval guns
- Guns, Naval. See Naval guns**
Gusset-plate diagram. W. M. Elliot. Eng N 73: 940 My 13 '15
- Gutters**
Advantages and disadvantages of the single gutter pavements. W. G. Kirchoffer. Eng & Contr 44:190-1 S 8 '15
Concrete and cast iron blocks for bridge gutter pavement. Il Munic Eng 49:62 Ag '15
Concrete curb and gutter as constructed in Denver, Colo. E. B. Van de Greyn. Il Munic Eng 48:18-18 Ja '15
Construction details and costs. Munic J 38: 153-9 F 4 '15
Curb and gutter in cities and counties, 1915; tabulation. Munic Eng 48:262-4 Ap '15
Street and sidewalk improvement in the United States and Canada; tabulation. Munic Eng 48:352-8 Je '15
Street with a single gutter. W. G. Kirchoffer. Good Roads n s 9:138 Ap 3 '15; Same. Eng & Contr 43:229-30 Mr 10 '15
See also Pavements
- Gutters (roof)**
Making molded gutter in country shop. diags Metal Work 82:825-6 D 25 '14
Sheet metal gutter construction problems. diags Metal Work 83:700-1, 734 My 14-21 '15
- Gymnasiums**
Gymnasium for an industrial school at Fishkill-on-Hudson, N. Y. Il diags plan Bldg Age 37:19-25 S '15
- Gypsum**
Gypsum as a fireproof material. H. G. Ferring. Munic Eng 48:73 Ja '15
Gypsum block in the Edison fire. S. G. Webb; V. G. Marani. Eng Rec 71:88 Ja 16 '15
Miocene age of Dodge gypsum. C: R. Keyes. Eng & Min J 100:466 S 18 '15
Occurrence of anhydrite in the United States. A. F. Rogers. Il Sch Mines Q 36:139-42 Ja '15
Use of gypsum for fire protection. V. G. Marani. Eng M 48:596-8 Ja '15
- Gyro-compass**
New gyroscopic compass. K. Scott. Met & Chem Eng 12:786 D '14
- Gyroscope**
Electric stabilizer for steamships. Elec R & W Elec'n 67:290-1 Ag 14 '15
Electrically driven gyroscope in marine work. H. C. Ford. Il Am Inst E E Pro 33:873-87 Je '14; Same. Sci Am S 78:268-9, 284-5 O 24-31 '14; Same cond. Eng M 47:911-13 S '14
Discussion. Am Inst E E Pro 33:1890 D '14
Gyroscopic phenomena. B. L. Newkirk. diags Sci Am S 79:380-1 Je 12 '15
Gyrostats and their lessons. Sci Am S 79: 228-9 Ap 10 '15
See also Gyro-compass; Gyro telescope
Unicycles
- Gyrostatics**
Gyrostatic action. J. G. Gray. Il diags Sci Am S 79:172-3, 188-9 Mr 13-20 '15
Lord Kelvin's work on gyrostatics; with discussion. A. Gray. Il Inst E E J 53:277-30 F 15 '15
- Gyro telescope**
Gyroscopic indicator for airships. C. Dienstbach. Il Sci Am 113:363-1 O 23 '15

H

- Hahn, Otto H., 1845-1915
Sketch. por Eng & Min J 100:362 Ag 28 '15
- Hair**
Sudden turning grey of the hair. Sci Am S 8 288 O 30 '15
- Hair cloth**
Dyeing hair cloth. Il Textile World 49:348 Je '15
- Halides**
Method for the titration of small amounts halides. F. C. McLean and D. D. Van Slyk. Am Chem Soc J 37:1128-34 My '15

Halifax, Nova Scotia

Public works

New deep water pier at Halifax. A. F. Dyer. II Concrete Cem 7:7-13 J1 '15; Same cond. Eng N 73:1204-10 Je 24 '15

Hall effect

Application of the electron theory to various phenomena. J. P. Minton. Gen Elec R 18: 291-5 Ap '15

Hallstead, Pennsylvania

Bridges

Reinforced-concrete bridge with cantilever abutments. diags Eng Rec 70:622-3 D 5 '14

Halogens

Contributions to the knowledge of halogenation. R. L. Datta and S. D. Gupta. Am Chem Soc J 37:569-82 Mr '15

Hamilton, Ontario

Sewerage

West End sewage-treatment works, Hamilton, Ont. B. E. T. Ellis. diags plans Eng N 73:424-8 Mr 4 '15

Water supply

Reconstruction of the Hamilton, Ontario, water works. A. F. Macallum. Eng & Contr 44: 312-13 O 20 '15; Same. II Munic Eng 49:164-7 N '15

Hammers

Efficiency of forging hammers. C. H. Wackernagel. Mach 21:785 Je '15
Handy soft hammer. diags Eng & Min J 100: 883 N 27 '15

Power hammer equipment. C. A. Tupper. Iron Age 96:112 J1 8 '15

Hammers, Electric. See Electric hammers

Hammers, Pneumatic. See Pneumatic hammers

Hampton Institute

Industrial education in the South. II Bldg Age 36:60-4 D '14; 37:67-9 Ja '15

Work of the Hampton institute. II Inland Ptr 56:379-80 D '15

Hand railing. See Railings

Harbors

Harbor development for Providence, R. I. plan Eng & Contr 43:sup21 Je 30 '15

Harbor developments at Toronto, Ont. Eng & Contr 43:sup21 My 26 '15

How \$30,000,000 is to be spent; allotment of appropriation to government river and harbor projects. Eng & Contr 43:sup24 Ap 14 '15

Improvement of San Francisco's water front. J. Newman. II diags Eng N 73:326-8 F 13 '15

Works for the improvement of navigable estuaries; abstract. L. Luiggi. Eng Rec 72:637-8 N 20 '15

See also Breakwaters; Buoys; Docks; Dredges; Dredging machinery; Freight handling; Piers; Ports; Terminals; Wharves

Hardening

Hardening iron and its alloys; abstracts. C. A. Edwards and H. C. H. Carpenter. II Iron Tr R 55:122-6+; 56:130-4 D 31 '14, Ja 14 '15

Hardening of metals. Am Soc M E J 37:489-90 Ag '15

Hardening of metals: discussion at the Faraday society. II Engineer 118:503-5 N 27 '14; Met & Chem Eng 13:173-6 Mr '15

Two die and shell hardening furnaces. II Iron Age 96:79 J1 8 '15

See also Case hardening; Steel, Hardening of

Hardening of steel. See Steel, Hardening of

Hardie, James Keir, 1856-1915

Sketch. por Inland Ptr 56:197-9 N '15

Hardinge mill

Britannia linings for Hardinge mills. G. E. Collins. Met & Chem Eng 13:650-1 O 1 '15

Britannia tube-mill lining. II Eng & Min J 99:239-40 Ja 30 '15

Hardinge conical ball mill. II diag Metal Ind n s 13:473 N '15

Hardinge mill data. A. F. Taggart. Am Inst Min E Bul 103:1365-76 J1 '15

Hardness

Brinell hardness and tenacity factors of a series of heat-treated special steels; discussion. A. McWilliam and E. J. Barnes. Met & Chem Eng 13:502-3 Ag '15

Brinell hardness testing of non-ferrous alloys. V. Skillman. Metal Ind n s 12:423-4 O '14; Same. Foundry 43:111-12 Mr '15

Comparison of hardness testing apparatus. Mach 21:364 Ja '15

Hand device for testing hardness. M. F. Turpin. Iron Age 96:923 O 21 '15

Measuring the hardness of rubber. II Iron Age 95:1393 Je 24 '15

Testing the hardness of iron castings. G. S. Evans. II diag Iron Age 96:8-10 J1 1 '15

Tool for hardness tests developed by L. Loewe & co. H. Friedmann. II Iron Tr R 57:899 N 4 '15

Hardware

British India; hardware lines. II U S Sp Cons Rep 72:215-31 '15

Electricity in hardware manufacturing. II Elec R & W Elec'n 66:301-6 My 1 '15

See also Bolts and nuts; Cutlery

Hardware association, National. See National hardware association

Hardware shops

Clearing the way for the season's business. II Metal Work 83:427-9+ Mr 19 '15

Combination shop can best serve community. II Metal Work 83:35-8+ Ja 8 '15

Hardwood

Northern hardwood forest; its composition, growth, and management. E. H. Frothingham. II map U S Agric Bul 285:1-79 '15

Hartford, Connecticut

Water supply

Addition to Hartford waterworks system augmenting daily supply by 30,000,000 gallons. II map Eng Rec 72:289-90 S 4 '15

Design and construction of the new supply conduit (Nepaug) of the Hartford water works. C. M. Saville. Eng & Contr 43:23-6 Ja 13 '15

Hartford electric light company

Electrical equipment and efficient features of new office building. II diag Elec W 65:206-9 Ja 23 '15

Hartlepool

Engineers and the Hartlepool raid. Engineer 118:610 D 25 '14

Harvard club of New York

Addition to the New York Harvard club. J. T. Boyd, jr. II diags Arch Rec 33:615-30 D '15

Harvard university

Dudley memorial gate; views. Brickb 24:255-6 O '15

Harry Elkins Widener memorial library; views and plans. Brickb 24:pl 106-11 Ag '15

Widener memorial library. II Arch & Bldg 47: 295-301 Ag '15

Harvest disease

Harvest disease due. Sci Am S 80:100 Ag 14 '15

Harvesting machinery

Harvesting grain by motor power. II Sci Am 112:612 Je 19 '15

Seventy years of inventions. II Sci Am 112:512, 514 Je 5 '15

Manufacture

Electricity in harvesting machinery works. II Elec R & W Elec'n 67:745-50, 838-8 O 23, N 13 '15

Hats

See also Panama hats

Haulage

Barney incline for hauling wagons out of pit. II Eng N 74:894 N 4 '15

Cart for rock quarries. G. B. Wilson. II Eng & Min J 99:385 F 20 '15

Centrally controlled electric haulage systems. F. E. Woodford. II Eng Soc W Pa 31:584-97; Discussion. 31:598-608 O '15

Gasoline locomotive hauls material trains for concrete highway. II Eng Rec 71:152 Ja 30 '15

Haulage—Continued

- Hauling heavy water pipes. E. C. Miles. *Il Munic J* 88:97-9 Ja 28 '15
 Machinery for construction and maintenance, haulage of stone, etc. T. R. Agg. *Good Roads n s* 9:23-4 Ja 3 '15; Same. *Eng & Contr* 43:156-8 F 17 '15
 Method of computing average haul of road material used by the New York highway commission. *Eng & Contr* 43:17-18 Ja 6 '15
 Motor cars supplant horses in Vienna for drayage. L. Spängler. *Il Elec Ry J* 45:637 Mr 27 '15
 Standard-gage railroad to haul road materials. *Il Eng Rec* 72:393 S 25 '15
 Turntable aids road contractor in solving hauling problem. *Il Eng Rec* 72:308 S 4 '15
 Wet concrete hauled from central plant on river. *Il Eng Rec* 71:469-70 Ap 10 '15
See also Loading and unloading; Mine haulage; Motor trucks; Motor trucks in construction work; Railroads, Industrial; Tractors

Cost

- Analysis of cost of hauling on country roads. *Eng N* 73:174 Ja 28 '15
 Comparative cost of handling earth on flat and air dump cars. *Ry Age* 58:1444 Je 18 '15
 Cost of handling material with motor versus horse-drawn equipment. H: F. W. Arnold. *Eng M* 50:28-32 O '15
 Cost of motor-truck hauling depends on conditions. W: Collins, Jr. *Eng N* 74:653 S 30 '15
 Handling 400 tons of stone per day with auto trucks. *Eng Rec* 70:621-2 D 5 '14
 Hauling gravel with motor truck and trailers; a service test in concrete road construction. *Il Eng & Contr* 42:535-6 D 9 '14
 More use of motor trucks for hauling structural steel. D. P. N. Little. *Il diag Eng N* 74:554-5 S 16 '15
 Motor trucks for heavy structural steel. W: Collins, Jr. *Il Eng N* 74:174-6 JI 22 '15
 Portable railway in highway construction. *Il Good Roads n s* 9:180-1 My 1 '15
 Road building with industrial equipment: twelve-car train hauled by a 20-horsepower dinky. *Il Eng Rec* 70:621 D 5 '14
 Trench spoil moved cheaply by tractor-trailer trains. *Il Eng N* 74:842-3 O 28 '15
 Underestimating the cost of motor trucking. E. N. Bryan. *Eng & Contr* 43:210 Mr 10 '15
 Utilization of the motor truck in highway work. *Il Good Roads n s* 9:171-9 My 1 '15
See also Mine haulage—Cost

- Havana electric railway, light & power co., Havana, Cuba
 Havana consolidated power plant. C. W. Ricker. *Il diag Power* 42:218-22, 257-61 Ag 17-24 '15
 Havana—new power station. C. W. Ricker. *Il diag Elec Ry J* 45:920-5 My 15 '15; Same; with table of electrical equipment. *Elec W* 65:1233-40 My 16 '15; Abstract. T. C. Uibright. *Sibley J* 30:3-10 O '15

Hawaiian Islands**Sanitary affairs**

- Potable water supplies of the Hawaiian Islands. S. W. Tay. *Munic J* 38:104 Ja 28 '15
Headache
 Life-study of patients. G. M. Gould. *Sci Am* 79:226-7 Ap 10 '15

Headframes

- Steel headframe at no. 9 shaft, Republic mine, Vulcan, Mich. F. L. Burr. *Il plans Eng & Min J* 100:379-82, 430-5 S 4-11 '15

- Headgates.** See Floodgates; Gates; Sluice gates
Headgear

See also Helmets**Heading machines**

- National bolt header. *Il Mach* 21:833-4 Je '15; *Iron Age* 95:1217 Je 3 '15; *Iron Tr R* 57:265 Ag 5 '15; *Ry Age (Mech ed)* 89:373-4 JI '15

Headlights

- Incandescent headlights and projectors. P. S. Bailey. *Il Illum Eng Soc* 10:271-80 no 3 '15
 Incandescent lamps for projectors. L. C. Porter. *Il Gen Elec R* 18:371-6 My '15
 Pressed-steel headlight for interurban cars. *Il Elec Ry J* 46:1048-9 N 20 '15

- Headlights, Automobile.** See Automobiles—Lighting

- Headlights, Locomotive.** See Locomotive headlights

Health boards

- Co-operative health board. *Sci Am* 112:336 Ap 10 '15

- Health Insurance.** See Insurance, Health

Health resorts

- Cost of health-seeking. *Sci Am* 112:78 Ja 23 '15

Heart

- Instrumental study of the heart. *Il Sci Am* 112:630-1+ Je 26 '15

Heat

- Heat developed in crushing. J. Cook. *Eng & Min J* 99:978-8 Je 5 '15; Abstract. *Met & Chem Eng* 13:190 Mr '15

- Uses of intense heat and some of its applications to industrial processes. *Sci Am S* 80:243-4 O 16 '15

See also Boiling points; Calorimeters and calorimetry; Combustion; Evaporation; Fusion, Latent heat of; Heating; Insulation (heat); Melting points; Pyrometers and pyrometry; Radiation; Specific heat; Steam; Sun; Temperature; Thermochemistry; Thermodynamics; Thermometers; Waste heat

Heat conductivity

- Dissociation of hydrogen into atoms. I. Langmuir and G. M. J. Mackay. *Am Chem Soc J* 36:1708-22 Ag '14

- Temperature changes in wood under treatment. G. M. Hunt. *Eng Rec* 71:144-5 Ja 30 '15

- Thermal conductivity of refractories. B. Dudley, Jr. *Met & Chem Eng* 13:315-16 My '15

Heat engines

- Efficiency of heat engines. (Engineers' study course) *Power* 41:136-7 Ja 26 '15

- Efficiency of heat engines. R. L. Wales. *Power* 42:17-18 JI 6 '15

- Heat-engine cycles. *Power* 41:173-5 F 2 '15

- Theoretical efficiency of heat engines. F. G. Gasche. *Power* 41:753-4 Je 1 '15

- Theoretical efficiency of heat engines. R. C. H. Heck. *Power* 41:534-6; 42:131 Ap 20, JI 27 '15

- See also* Boilers, Mercury; Gas and oil engines; Steam engines

Heat radiation

- Apparatus for the study of heat radiation. J. D. Hoffman. *Il Heat & Ven* 12:28-30 O '15

- See also* Heating—Tables, calculations, etc.

Heat regulators

- Foxboro temperature regulator. *Il Power* 40:823-4 D 8 '14

- Window displays boost regulator sales. *Metal Work* 83:46-8 Ja 1 '15

Heat transmission

- Analyzing heat flow; use of aluminum for automobile motor construction. E. H. Sherbondy. *Automobile* 33:384-5 N 4 '15

- Basis for rational design of heat transfer apparatus. E. B. Wilson. *Am Soc M E J* 37:546-9; Discussion. 37:549-51 S '15

- Coefficient of heat transmission in a pressed steel radiator; with discussion. J: R. Allen. *plans Am Soc Heat & V E* 20:86-93 '14

- Difficulty of measuring heat, with special reference to radiated and convected heat. A. H. Barker and F. C. S. Brendal. *Heat & Ven* 12:21-4 My; 33-4 S '15

- Effect of radiator decoration. T: Tait. *Dom Eng* 72:341-2 S 18 '15

- Establishment of a standard for transmission losses from buildings of all constructions. R. P. Bolton. *Heat & Ven* 12:19-23 JI '15; Same. *Dom Eng* 73:264-6 N 27 '15; Same cond. *Metal Work* 84:373+ S 17 '15

- Heat emitting capacity of radiation. C: D. Allan. *Heat & Ven* 12:32-4 Ag '15

- Heat from radiators under different temperatures. C: A. Fuller. *Heat & Ven* 12:32-5 Mr '15

- Heat losses by transmission through various building materials. L. A. Harding. *Am Soc Heat & V E* 19:208-13 '13

- Heat losses in steam transmission; abstract. W. L. Cathcart. *Am Soc M E J* 37:611 O '15

- Heat transmission and tube length in marine feed-water heaters; abstract. L. Loeb. *Am Soc M E J* 37:433-7 Ag '15

Heat transmission—Continued

Heat transmission capacity of a silica dish. W. K. Lewis. *Il diag J Ind & Eng Chem* 7:410-14 My '15

Heat transmission with pipe coils and cast-iron heaters under fan blast conditions; with discussion. L. C. Soule. *Il plan Am Soc Heat & V E* 19:391-411 '13

Heating data for varying conditions. J. A. Donnelly. *Heat & Ven* 12:28-33 J1 '15

Measurement of the efficiency of domestic fires, and on a simple and smokeless grate. A. V. Harcourt. *Il Am Soc M E J* 37:419-20 J1 '15

Measurement of the temperature drop in blast-furnace hot-blast mains. R. J. Wysor. *diag Am Inst Min E Bul* 106:2181-70 O '15; Abstract. *Iron Age* 96:869 O 14 '15

Notes on some recent researches. J. E. Petavel. *diag Engineer* 120:433-4 N 5 '15

Standard methods of proportioning direct radiation and standard sizes of mains. J. A. Donnelly. *Dom Eng* 72:366-8; 73:2-4 S 25-O 2 '15

Surface condenser; with discussion. C. F. Braun. *diags Am Soc M E J* 37:459-65 Ag '15

Tests on the heat transmission of direct radiators at low differences in temperature. J. A. Donnelly. *diag Heat & Ven* 11:36-7 S '14; Same. *Am Soc Heat & V E* 20:405-7 '14; Same. *Dom Eng* 68:65 J1 18 '14; Discussion. *Heat & Ven* 11:38-9 S '14; Discussion. *Am Soc Heat & V E* 20:408-11 '14

See also Heat conductivity; Heat radiation; Insulation (heat)

Heat treatment

Heat treatment of copper and brass. C. R. Hayward. *Il Metal Ind n s* 13:275-7 J1 '15

Heat treatment of steel. See Steel, Heat treatment of

Heaters

Combustion of coal in domestic heaters. R. W. Davenport. *Metal Work* 83:928-9 Je 25 '15

Condensation in hot-blast heaters. J. D. White. *Power* 41:128 Ja 26 '15

Heat transmission with pipe coils and cast-iron heaters under fan blast conditions; with discussion. L. C. Soule. *Il diag Am Soc Heat & V E* 19:391-411 '13

Heaters for fan work. C. L. Hubbard. *Eng M* 48:569-72 Ja '15

Problems in power-plant design. (Engineers' study course) C. L. Hubbard. *Power* 40:820-2 D 8 '14

See also Electric heaters; Gas heaters; Solar heaters; Water heaters

Heaters, Electric. See Electric heaters

Heating

Advance in heating and ventilating field. R. C. Carpenter. *Metal Work* 84:431-3 O 1 '15

American society of heating and ventilating engineers: twenty-first annual meeting, Jan. 20-22, 1915. *Heat & Ven* 12:39-48 F '15

Analysis of a combination heating system; with discussion. F. K. Chew. *plans Am Soc Heat & V E* 19:89-103 '13

Architect on modern ventilation ideas. C. S. Kaiser. *Heat & Ven* 12:45-6 S '15

Blower systems for heating and ventilating. A. M. Feldman. *diags Dom Eng* 69:257 N 28 '14; Same. *Am Soc Heat & V E* 20:412-15 '14

Can we locate the neutral zone in heated buildings? abstract. J. J. Blackmore. *Am Soc M E J* 37:560 S '15

Design of greenhouse heating plants. P. McKee. *Metal Work* 83:805; 84:44-6, 337 Je 4, J1 9, S 10 '15

Design of warm air heating systems. W. F. Colbert. *Metal Work* 83:219-20 F 5 '15

Designing of warm air heating systems. R. H. Lynd. *plans Metal Work* 83:192-7 Ja 29 '15

Developments and present problems in heating and ventilation. J. R. Allen. *Am Soc Heat & V E* 19:53-62 '13

Edison phonograph shop. C. E. Daniel. *plans Heat & Ven* 12:13-18 Ap '15

Electric fans in the winter: installed in the cold-air intakes of furnaces to increase temperature and reduce coal consumption. P. W. Gumaer. *plans Elec W* 65:229-31 Ja 28 '15; Abstract. *Heat & Ven* 12:46-7 S '15; Abstract. *Ind Eng* 15:79 Ag '15

Engineers show need of good ventilation. *Metal Work* 83:203-7+ Ja 29 '15

Future developments in heating and ventilation. A. H. Barker. *Power* 41:897-3 Je 29 '15; Abstract. *Am Soc M E J* 37:490-1 Ag '15

Heating a suburban house by furnace. *Il diags plans Bldg Age* 37:19-26 Mr '15

Heating and ventilating conditions in large office building. C. E. A. Winslow and G. F. Maglott. *Heat & Ven* 12:26-31 F '15

Heating and ventilating in Germany. H. W. E. Muellenbach. *Am Soc Heat & V E* 20:186-96 '14

Heating and ventilating industrial plants. E. L. Hogan. *Metal Work* 83:263-5 F 13 '15; Same. *Dom Eng* 70:239-41 F 20 '15

Heating and ventilating practice in Sweden. H. Theorell. *Am Soc Heat & V E* 20:94-7 '14

Heating and ventilating stables and garages. C. L. Hubbard. *diags Dom Eng* 72:168-70 Ag 7 '15

Heating and ventilation of main floor and vestibules of the Lord & Taylor store. J. Graham. *diags Dom Eng* 72:282-3 S 4 '15

Heating and ventilation of offices and banking rooms. C. L. Hubbard. *diags Brickb* 23:307-10 D '14

Heating equipment of federal building, Denver. *Il Metal Work* 84:247-9+ Ag 20 '15

Heating installations in private dwellings. R. E. Lynd. *Metal Work* 83:135-7 Ja 15 '15

Heating outfit adapted to an old house. *Il plans Metal Work* 83:93-4 Ja 8 '15

Heating progress. S. R. Lewis. *Il Dom Eng* 69:398-400 D 26 '14

Heating systems in the United Kingdom: open-grate fire vies with coal and wood stove. *Metal Work* 83:697-8 My 14 '15

Heating the skyscraper and its problems; abstract. W. H. Driscoll. *Heat & Ven* 12:44-5 Ja '15

Heating trade wants six-inch studs. *Bldg Age* 37:61 J1 '15

House heating in European countries. *Metal Work* 84:273 Ag 27 '15

Importance of a proper perspective. S. R. Lewis. *Am Soc Heat & V E* 20:249-52 '14

Inside circulation system in northern Maine. *Metal Work* 83:529-30 Ap 9 '15

Lecture course on elements of heating. C. A. Fuller. *diags Metal Work* 81:84-5, 209, 281-2, 338-9, 295-6, 460-1, 651-2, 686-7; 82:100; 83:927; 84:212-13, 303-4, 430-1, 553-4 Ja 2, 30, F 13, 27, Mr 3, 27, My 15-22, J1 24 '14, Je 25, Ag 13, S 13, O 1, N 5 '15

Measurements for the household. U S Bur Stand Circ 55:55-67 '15

Merits of vapor systems for house heating. N. W. Taplin. *Metal Work* 83:475-6 Mr 26 '15

Modern practice in heating and ventilation. A. G. King. *Dom Eng* 68:2-4, 61-4, 182-3, 339-41; 64:37-9, 99-101, 122-4, 278-5; 65:2-4, 341-3, 365-8; 66:5-8, 231-4, 328-31; 67:190-2, 288-9-1; 68:124-6; 69:354-5; 70:2-4, 268-9, 366-8; 71:2-3, 92-3, 182-4, 276-8; 72:2-4, 102-4, 310-12 Ap 5, 19, My 17, Je 21, J1 12, 26, Ag 2, S 6, O 4, D 13-20 '13, Ja 3, F 21, Mr 14, My 16, Je 6, Ag 1, D 19 '14, Ja 2, F 27, Mr 20, Ap 3, 24, My 15, Je 5, J1 3, 24, S 11 '15

Modern practice of recirculating air effects economy and makes satisfied customers. G. D. Crain, Jr. *Metal Work* 82:769 D 11 '14

Problems in power-plant design. (Engineers' study course) C. L. Hubbard. *Power* 40:820-2, 858-60, 894-7 D 8-22 '14

Progress of heating and ventilating art in the last decade. R. C. Carpenter. *Sibley J* 30:51-4 N '15

Regulating warm air furnace practice; tentative recommendations for a standard of procedure. *Metal Work* 83:646-8 Ap 30 '15

Saving fuel in heating a house. L. P. Breckenridge and S. B. Flagg. U S Bur Mines Tech Pa 97:1-33 '15; Same cond. (Firing various fuels in residence heaters). *Metal Work* 84:552-4, 584-6, 613-15 O 29-N 12 '15

Selecting equipment for heating system. *Metal Work* 82:828-9 D 25 '14

Successful warm air heating systems. J. H. Hussie. *Metal Work* 84:3+ J1 2 '15

Systems for the engineer and contractor. T. Barwick. *Heat & Ven* 11:27-34 N; 15-21 D '14; 12:18-22 Ja '15

Heating—Continued

Test of a hot blast air tube heating system. R. H. Lockwood and A. C. Staley. *diag Heat & Ven* 11:29-34 D '14

Tests of heating coils under fan blast conditions as conducted at Institute of thermal research, Buffalo, N. Y., July 19, 1913: report of committee. *Am Soc Heat & V E* 20:216-19 '14

Theory and practice in warm-air heating. *Metal Work* 83:661+. 772-3, 842-3; 84:47-3, 109-10, 184-5, 203-4, 242-3, 310-11, 329-1, 451-3, 558-9 *My* 7, 28, *Je* 11, *Jl* 9, 23, *Ag* 6-20, S 3-10, O 8, 29 '15

Theory and practice of heating and ventilating in France. G. Debesson. *diags Am Soc Heat & V E* 20:124-50 '14

Two-family house heated by furnace. *diags plans Bldg Age* 37:67-70 D '15

Warm air furnace in trying location. *il plans Metal Work* 83:327-30 F 26 '15

Warm air heating for suburban residence. *il plans Metal Work* 83:730-3 *My* 21 '15

Warming and circulating air in residence. *diags plan Metal Work* 83:255-6 F 12 '15

Wind leakage. F. K. Davis. *Heat & Ven* 12:48-9 *Ap* '15

See also Boilers, Heating; Car heating; Chimneys; Churches—Heating and ventilation; Electric heating; Fireplaces; Fuel; Furnaces, Hot air; Gas heating; Heaters; Heating apparatus; Heating contracts; Heating from central stations; Hot water heating; Hotels—Heating and ventilation; Radiators; Schoolhouses—Heating and ventilation; Solar heaters; Steam heating; Stoves; Ventilation; also Institute of heating and ventilating engineers

Cost

Cost of heating and ventilating systems. *Heat & Ven* 12:61-2 *Mr* '15

Expense of operating heating and ventilating plants; with discussion. H. M. Hart. *Am Soc Heat & V E* 19:308-27 '13

House heating with natural gas for fuel. F. R. Hutchinson. *il Metal Work* 84:9-12+ *Jl* 2 '15

New York city heating costs. *Power* 42:236 *Ag* 17 '15

Records for two factory buildings and a Y. M. C. A. building. S. R. Lewis. *Heat & Ven* 12:20-2 *Ag* '15

Estimates

Estimate record blanks in book form. *Metal Work* 83:201 *Ja* 29 '15

Handy estimate sheet for heating work. *Metal Work* 83:151+ *Ja* 23 '15

Laws and regulations

Bill to regulate installation of heating systems before legislature in Massachusetts. *Dom Eng* 70:269-70 F 37 '15

Code regulations and furnace installation. F. K. Chew. *Metal Work* 83:908 *Je* 18 '15

Features of nineteen typical heating franchises. *il Heat & Ven* 12:43-5 *Jl* '15

Heating ordinance of Cleveland, Ohio. V. D. Allen. *Dom Eng* 70:44-6, 72-4, 155-6 *Ja* 9-16, 30 '15

Importance of heating ordinances. S. H. Pool. *Dom Eng* 69:292-4 D 5 '14

Legislation affecting the heating industry. C. K. Foster. *Heat & Ven* 12:40-3 *Ag* '15

Omaha ordinance governing furnace work. *Metal Work* 84:330-1 S 10 '15

Rates

See Hot water heating—Rates

Tables, calculations, etc.

Air changes and direct radiation. *Dom Eng* 73:108-9 O 23 '15

Can we locate the neutral zone in heated buildings? J. J. Blackmore. *diags Heat & Ven* 12:27-32 N '15

Chart for direct-heating requirements. A. M. Daniels. *Power* 42:89-90 *Jl* 20 '15

Computing heating surface for brooder house. *Metal Work* 84:391+ S 24 '15

Condensation in hot-blast heaters. J. D. White. *Power* 41:128 *Ja* 26 '15

Data on overhead steam heating. I. N. Evans. *Heat & Ven* 12:41-2 S '15

Design of indirect heating systems with respect to maximum economy of operation. R. L. Busey and W. H. Carrier. *Am Soc Heat & V E* 19:141-65 '13

Design of warm air heating systems. W. F. Colbert. *Metal Work* 83:219-20 F 5 '15

Designing of warm air heating systems. R. E. Lynd. *plans Metal Work* 83:192-7 *Ja* 29 '15

Drill room. University of Illinois. requires 23,000 square feet of direct radiation. G. B. Rice. *il diags Heat & Ven* 12:13-22 S '15

Effect of time in determining radiation. J. R. Allen. *Heat & Ven* 11:23-7 F '14; Same; with discussion. *Am Soc Heat & V E* 20:112-23 '14

Engineering data for furnace heating; design of warm air systems now being based on thermal unit. A. C. Willard. *Metal Work* 83:604-6+ *Ap* 23 '15

Establishment of a standard for transmission losses from buildings of all constructions. R. P. Bolton. *Heat & Ven* 12:19-23 *Jl* '15

Same. *Dom Eng* 73:264-6 N 27 '15

Heat emission from radiators. E. D. Bottsford. *Heat & Ven* 12:49 S '15

Heat emitting capacity of radiation. C. D. Allan. *Heat & Ven* 12:32-4 *Ag* '15

Heat from radiators under different temperatures. C. A. Fuller. *Heat & Ven* 12:32-5 *Mr* '15

Heat loss test in a 200-room building. *Heat & Ven* 12:17-19 F '15

Heating data for varying conditions. J. A. Donnelly. *Heat & Ven* 12:28-33 *Jl* '15

Hot water heating radiation formula. N. J. Serrill. *Metal Work* 84:305 S 3 '15

How to figure radiation for steam and hot water heating. *Dom Eng* 73:209-10 N 13 '15

Lecture course on elements of heating. C. A. Fuller. *diags Metal Work* 83:327 *Je* 25 '15

Modern practice in heating and ventilation. A. G. King. *diags Dom Eng* 72:2-4 *Jl* 3 '15

New friction head slide rule for heating work and power piping. *diags Heat & Ven* 12:50-1 *Ap* '15

New pipe chart and tables based on square feet of radiation. T. W. Reynolds. *Heat & Ven* 12:22-5 N '15

Problem of figuring radiation. *Dom Eng* 73:107-8 O 23 '15

Records for two factory buildings and a Y. M. C. A. building. S. R. Lewis. *Heat & Ven* 12:20-2 *Ag* '15

Rules for figuring hot water radiation. A. J. Lowndes. *Metal Work* 84:618-19, 674 N 12, 26 '15

Rules for figuring radiation and sizes of mains. *Dom Eng* 72:320 S 11 '15

Rules for warm-air furnace installation. *Metal Work* 84:483-91 O 15 '15

Short method calculating glass surface. E. M. Shealy. *Dom Eng* 72:286 S 4 '15

Size of fire pot. *Metal Work* 84:561, 620-1 O 29, N 12 '15

Standard methods of proportioning direct radiation and standard sizes of mains. J. A. Donnelly. *Dom Eng* 72:366-8; 73:2-4 S 25-O 3 '15

Suggested formula for calculating the necessary amount of radiation for heating rooms by hot water, particularly applicable to the heating of all-gas kitchens, by hot water from a furnace coil or a water heater; with discussion. J. A. Donnelly. *Am Soc Heat & V E* 20:294-8 '14

Theory and practice in warm-air heating. *Metal Work* 83:772-3; 84:47-9, 109-10, 184-5, 202-4, 242-3, 451-8, 558-9 *My* 28, *Jl* 9, 23, *Ag* 6-20, O 8, 29 '15

Time analysis in starting heating apparatus; with discussion. R. C. Taggart. *Am Soc Heat & V E* 19:292-308 '13

Trunk-line system heats Michigan bungalow *il plans Metal Work* 84:436-7 O 1 '15

Variation of temperature at different room levels in furnace testing. R. L. Lynd. *Heat & Ven* 12:47-8 *My* '15

Warm-air trunk line system for residence. *il plans Metal Work* 84:647-8 N 19 '15

See also Heating pipes; Steam flow

Terminology

Air return systems as a standard designation *Heat & Ven* 12:50 *Ag* '15

- Heating and ventilating engineers, American society of.** See American society of heating and ventilating engineers
- Heating apparatus**
Heating devices at Panama exposition. Metal Work 83:871-2 Je 13 '15
Time analysis in starting heating apparatus; with discussion. R. C. Taggart. Am Soc Heat & V E 19:392-308 '13
See also Heaters
- Heating boilers.** See Boilers, Heating
- Heating contracts**
Responsibility under contract for fixtures and plumbing. Dom Eng 70:40 Ja 9 '15
- Heating engineers**
Definite recommendations for improving the status of the heating engineer. Heat & Ven 12:21-7 O '15
- Heating from central stations**
Central heating with forced hot water. II plans Metal Work 84:139-40+, 177-8 JI 30-Ag 6 '15
Combination electric heating plant, Laramie, Wyo. A. E. Anderson. II Power 42:802-5 N 2 '15
Commercial end of the heating business. C. F. Oshman. Metal Work 84:392-4 S 24 '15
District heating. S. M. Bushnell and F. B. Orr. plans maps Heat & Ven 12:37-37 Ja; 32-7 F; 36-42 Mr; 37-41 Ap; 36-41 My; 28-33 Je '15
District-heating service and sales. Elec W 65:1576-7 Je 12 '15
District heating with open heater. T. Wilson. II plan Power 42:44-7 JI 13 '15
Flexible central-heating system. H. A. Woodworth. plan Elec W 65:937 Ap 10 '15
Hot water heating on a large scale; central heating plant for the State school of agriculture, Farmingdale, Long Island. II diag plans Heat & Ven 12:13-23 N '15
Laying district heating service mains. Metal Work 84:459-61+ O 8 '15
Locating overloaded sections in a central-heating system. H. A. Woodworth. Elec W 65:1123-4 My 1 '15
National district heating association 7th annual convention. Elec R & W Elec'n 66:1117-20 Je 12 '15
National district heating association 7th annual convention, Chicago, June 1-3. Heat & Ven 12:37-45 Je '15
Power plant of the Hughes electric co. C. P. Larsen. II Power 41:734 Je 1 '15
Trouble in combining two- and single-pipe systems. R. S. Hawley. diag Power 42:487-8 O 5 '15
- Heating industry**
Annual congress of the trade. Dom Eng 69:416-35+; 70:13-15 D 26 '14, Ja 2 '15
Classifying a heating system. J. A. Donnelly. Metal Work 84:57 JI 9 '15
Goods that give service which draws trade. II Metal Work 83:27-36 Ja 1 '15
Heating industry in Canada. N. A. Hill. Am Soc Heat & V E 20:365-9 '14; Same. Dom Eng 69:321-3 D 12 '14; Discussion. Am Soc Heat & V E 20:369-73 '14
Manufacturers and aggressive sales seekers. II Metal Work 83:14-25 Ja 1 '15
Where to dig for fall profits. II Metal Work 84:287-71 Ag 27 '15
See also Furnace industry
- Heating pipes**
Chart for determining size of pipe for gravity hot-water heating systems; with discussion. M. S. Cooley. Am Soc Heat & V E 19:377-80 '13
Conduits and insulation for heating pipes. C. L. Hubbard. diag Dom Eng 72:252-3 Ag 28 '15
Determination of pipe sizes for hot water heating systems. F. E. Giesecke. II diag Dom Eng 73:166-8, 201-4 N 6-13 '15
Inadequate space for heater pipes. T. R. Brien. Metal Work 84:402 S 24 '15
See also Furnaces, Hot air—Pipes and fittings; Steam pipes
- Heddles**
Heddles for weaving broad silks. Textile World 50:218 N '15
- Hedfield, George, d. 1826**
Old City Hall, Washington, D. C. H. F. Cunningham. II diag Arch Rec 37:268-73 Mr '15
- Heliotropism**
Recent studies in the dynamics of living matter. D. W. Thompson. Sci Am S 80:301 N 6 '15
- Hellum**
Notes on the noble gases. W. S. Andrews. Gen Elec R 18:226 Mr '15
- Hell Gate bridge.** See New York (city)—Bridges
- Helmets**
Fibre helmet for welders. II Foundry 43:380 S '15
Manufacture of steel helmets for the French soldiers. J. Boyer. II Sci Am 113:468-9 N 27 '15
- Hemicellulase**
Starch-forming enzyme from malt: its action on the hemicelluloses and its commercial application to brewing. C. B. Davis. II J Ind & Eng Chem 7:115-18 F '15
- Hemlock**
Eastern hemlock. El. H. Frothingham. II map U S Agric Bul 152:1-43 '15
Test of long-submerged hemlock timber. T. R. Lawson. II Eng N 73:159 Ja 28 '15
- Hemp**
Flax and hemp supply. C. R. Dodge. Textile World 48:475-8 F '15
Growing hemp in America. C. R. Dodge. II Sci Am S 79:308-9 My 15 '15
- Hen houses.** See Poultry houses
- Heredity**
Family resemblances. Sci Am S 80:331 N 20 '15
Heads and tails and heredity. El. Borel. II diag Sci Am S 78:403-5 D 26 '14
See also Plant breeding
- Herschel fall increaser**
Latest design of the Herschel fall increaser. C. Herschel. Eng N 73:84 Ja 14 '15
- Hertzian waves.** See Electric waves
- Hetch Hetchy project.** See San Francisco—Water supply
- Hewitt, Peter Cooper, 1861-**
Sketch. por Eng M 50:218-19 N '15
- Hexabromodiacetyl**
Hexabromodiacetyl. C. L. Jackson and R. Adams. Am Chem Soc J 37:2522-36 N '15
- Hexyluracil**
Researches on pyrimidines; the synthesis of 4-hexyluracil and its relationship to uracil-glucoside. T. B. Johnson. Am Chem Soc J 36:1891-9 S '14
- Hibbing, Minnesota**
Plucking the goose as town policy. Eng & Min J 100:377-8 N 27 '15
- Hickory**
Hickories, elm and ash trees. W. H. Miller. II Am For 21:719-29 Je '15
Hickory trees threatened with destruction. J. J. Levison. II Am For 21:797-9 JI '15
- High buildings**
Chicago's 1914 progress in building. II Bldg Age 37:46-8 F '15
Foundation work and the skyscraper. Sci Am 112:560 Je 5 '15
Heating the skyscraper and its problems; abstract. W. H. Driscoll. Heat & Ven 12:44-5 Ja '15
L. C. Smith building, Seattle, Wash. II plan Arch & Bldg 46:471-5 D '14
Problem of the high building. C. P. Warren. Sci Am S 79:368 Je 5 '15
Wind stresses in the steel frames of office buildings. W. M. Wilson and G. A. Maney. tables III U Eng Exp Sta Bul 80:1-88 '15
See also Office buildings; also Equitable building, New York; Woolworth building, New York
- High schools**
Recent tendencies in high school chemistry. R. H. Bradbury. J Fr Inst 180:449-61 O '15
- High temperature.** See Temperature, High

Highway accounting

- Cost keeping system for work performed by municipal forces of the Philadelphia bureau of highways. Eng & Contr 43:292-4 Mr 31 '15; Same cond. Eng Rec 71:360-1 Mr 20 '15
- Cost keeping system Oregon state highway commission. E. F. Ayres. Eng & Contr 44:349-50 N 3 '15
- Method of recording expenditures on account of maintenance, Pennsylvania highway department. W. R. Main. Eng & Contr 44:134 Ag 18 '15
- 1914 operations of the Philadelphia bureau of highways and street cleaning. Il Good Roads n s 9:131-5 Ap 3 '15
- Road-maintenance costkeeping in Pennsylvania. Eng N 74:250-3 Ag 5 '15
- Simplified system of town highway accounts. F. Buck. Munic Eng 43:56-7 Ja '15; Same cond. Eng Rec 70:534 N 14 '14
- Standard form for reporting costs of road construction. Eng & Contr 43:107 F 3 '15
- System of highway accounting. S. D. Gilbert. Eng & Contr 44:386-7 O 27 '15; Same. Good Roads n s 10:199-200 O 2 '15

Highway administration

- Application of the merit system to the appointment of road officials. P. S. Wilson. Eng & Contr 42:444 N 4 '14
- Automobiles versus horses in road-work supervision. E. W. James. Eng N 73:769 Ap 22 '15
- Co-operative road administration plan aided by post card bulletins. L. W. Allison. Eng Rec 71:143 Ja 30 '15
- Determination of the justifiable outlay for specific cases of highway improvement. C. Richardson. Good Roads n s 10:196-7 O 2 '15
- Discussion of the administrative and design features of highway bridge and culvert work. A. Marston. Eng & Contr 42:539-90 D 23 '14
- Economic factors all-important in rural highways. L. W. Page. Eng Rec 72:385 S 25 '15
- Educational field for state highway departments. J. I. Pratt. Eng & Contr 43:230-1 Mr 10 '15; Abstract. Eng Rec 70:611 D 5 '14
- Efficiency of highway organization. E. A. Stevens. Eng Rec 70:687-8 D 26 '14
- Engineering investigation of New York highway work. Eng N 73:737-8 Ap 22 '15
- Functions of the planning boards installed in the Bureau of highways and street cleaning, Philadelphia, Pa. W. H. Connell. Eng & Contr 44:187 S 8 '15; Same. Good Roads n s 10:168 S 11 '15
- Gains made by state management of road construction and maintenance. J. E. Pennybacker. Eng Rec 72:189-90 Ag 14 '15
- Good roads and the government. Sci Am S 78:390 D 19 '14
- Highway commission or highway commissioner? Good Roads n s 9:52 N 6 '15
- Highway department records. Munic J 38:434 Ap 1 '15
- Highway program of Cook county, Illinois. Il map Eng Rec 70:648-9 D 12 '14
- Highway superintendent of Cook county, Illinois, simplifies filing system. map Eng Rec 72:473-4 O 16 '15
- Highway work in Illinois. Il Good Roads n s 8:205-10 D 5 '14
- History and future of highway improvement. L. W. Page. Good Roads n s 10:189-91 O 2 '15
- How small communities may have good roads. L. W. Page. Il Sci Am 112:14-15 Ja 2 '15
- Inspection and cost record system used on road work in Cook county, Illinois. Eng & Contr 43:206-7 Mr 3 '15
- Inspection of state aid road construction in Wisconsin. J. T. Donaghey. Eng & Contr 42:462 N 11 '14
- Iowa state highway bridges not too heavy. Eng Rec 71:138-9 Ja 30 '15
- Need, preparation and utility of statistical records in a highway department. F. P. Farley. Eng & Contr 44:187-9 S 8 '15
- Organization and standards of the Pennsylvania state highway department. Il diags Eng & Contr 42:186-93 Ag 19 '14
- Organization and standards of the Wisconsin highway commission. Il diags Eng & Contr 42:398-403 O 28 '14

Organization and system in highway work. A. B. Fletcher. Good Roads n s 10:197-9 O 2 '15

- Organization, character of personnel, scope of work, and methods of operation and control of a large municipal highway department. W. H. Connell. Il map J Fr Inst 179:439-69 Ap '15
- Organization for and methods and cost of state aid road construction in Alabama. Il diags Eng & Contr 42:504-8 N 25 '14
- Organization of a state highway department. W. R. Jeffreys. Good Roads n s 9:238 Je 5 '15
- Organization of a state highway department; with discussion. J. N. Carlisle. Good Roads n s 9:53-5 F 6 '15
- Organization of road work under the Illinois highway commission. Il map Eng & Contr 43:168-72 My 26 '15
- Progress in highway administration. J. E. Pennybacker. Eng Rec 71:15-16 Ja 2 '15
- Progress of state management of public roads. J. E. Pennybacker. Eng & Contr 44:183 Ag 18 '15
- Relation of farm produce hauling to permanent road improvements. W. A. McLean. Eng & Contr 42:315-17 Ag 26 '14
- Road legislation and economics. J. E. Pennybacker. Eng & Contr 42:521-2 D 2 '14; Same cond. Munic Eng 48:49-50 Ja '15
- Road-maintenance costkeeping in Pennsylvania. Eng N 74:250-3 Ag 5 '15
- State road laws should centralize authority. A. N. Johnson. Eng Rec 72:351 S 18 '15
- Uniform system for highway statistics and data. H. E. Breed. Eng & Contr 44:233-6 S 22 '15; Same. Good Roads n s 10:257-9 N 6 '15
- Washington's state highways and highway department. W. R. Roy. Il Munic J 39:343-9 S 2 '15
- See also Highway accounting; Highway law; Roads—Maintenance and repair
- Highway bonds. See Roads—Finance
- Highway engineering**
- Promoting engineering work. B. K. Coghlan. Eng Rec 72:301-2 S 4 '15
- Short college courses in highway engineering or annual meetings of state associations of highway engineers; which is the better plan? Eng & Contr 43:45 Ja 20 '15
- See also Bridges; Pavements; Roads
- Highway law**
- Changes in the Illinois road law. Munic Eng 49:75-6 Ag '15
- Earth and gravel road construction and maintenance. I. O. Baker. Good Roads n s 9:71-3 F 6 '15
- Essentials of proper laws for highway work. A. N. Johnson. Good Roads n s 10:193-4 O 2 '15
- Essentials of proper laws for highway work. E. A. Stevens. Good Roads n s 10:191-3 O 2 '15
- Highway laws of the United States. Good Roads n s 10:83-97 Ag 7 '15
- Location and width of highways and the securing of rights-of-way. A. B. Fletcher. Eng & Contr 42:523-4 D 2 '14; Same cond. Eng Rec 70:563 N 21 '14
- Notes from state highway departments. Munic J 38:429-31 Ap 1 '15
- Provisions of the new highway law of Ohio. Eng N 74:492-4 S 9 '15
- State should deal directly with patentees of processes and materials in public work. S. Whinery. Eng Rec 72:73-4 Jl 17 '15
- Traffic; present tendencies, probable development and regulation. A. W. Dean. Good Roads n s 9:55-6 F 6 '15
- Wisconsin legislature makes changes in state highway laws. Good Roads n s 10:176-7 S 25 '15
- See also Automobiles—Laws and regulations; Highway administration; Jitney buses—Regulation; Road traffic; Street traffic
- Highway officials**
- Directory of state highway officials. Good Roads n s 10:17-20 Jl 3 '15
- See also American association of state highway officials

Highways. See Roads; Streets

Hill publishing company

Hill building: special building design for special use. *il* diag plans Eng N 73:1241-8 D 24 '14

Hippuric acid

Researches on hydantoin; the interaction of hippuric acid with thiocyanates. T. B. Johnson, A. J. Hill and B. H. Bailey. *Am Chem Soc J* 37:2406-16 O '15

Historic houses

Early architecture of the valley of the Rappahannock. F. C. Baldwin. *il* diag plans *Am Inst Arch J* 3:113-18, 234-40 Mr, Je '15

Hobbling

Hobbling operation performed on a Cleveland automatic. *il* diag Mach 21:524 F '15

Hobbling small gears on the milling machine. *diag Mach* 21:406 Ja '15

Hobs

Fawcett herringbone gear hobbing machine. *il* diag plan Mach 21:506-9 F '15

Lees-Bradner hyperboloid hob. *il* Mach 22:66-7 S '15

Results obtained with ground hobs. E. K. Hammond. *il* diag Mach 21:695-700 My '15

Hocking Valley railway

16th annual report. *Ry Age* 59:590-1, 626-7 O 1 '15

Hogs. See Swine

Holst towers

Portable hoist towers for concreting. *il* diag Eng N 72:1812-13 D 31 '14

Hoisting

Care and use of hoisting accessories: wire rope, manila rope, hooks, chains, accessories, lubrication of wire rope, strength of slings. *Mach* 21:297-8 D '14

Experiments to determine stresses in parts of rope falls. C. S. Adams. *Eng Rec* 72:425-6 O 2 '15

Heavy truck and rigging used to install 48-ton armatures. *il* Eng Rec 71:786 Je 19 '15

How a washed-out bridge-span was pulled out of a river. plan Eng N 73:634 Ap 1 '15

Outrigger on gin-pole saves time in erecting roof steel. W. H. Palmer. *diag Eng Rec* 71:310 Mr 6 '15

Riley safety wrecker yoke. *il* Ry Age (Mech ed) 89:547 O '15

Seventy-nine-ton derrick car lowers itself 50 feet in twenty-five minutes. A. S. Beale. *il* Eng Rec 72:78-9 JI 17 '15

Skip with cable guides. J. Simmons. *il* Eng & Min J 100:516 S 25 '15

Special hoisting job. *il* diag Eng N 74:606-7 S 28 '15

Steel-wire hoisting ropes; rule for finding the load stress and the required diameter. F. W. Sperr. *Colliery* 35:806-7 Je '15

Use of slings in handling loads. *diag Eng & Contr* 42:388-9 O 7 '14

See also Crane hooks; Hoist towers; Mine hoisting

Hoisting machinery

Alternating-current coal hoist. R. E. Brown. *il* Am Inst E E Pro 34:615-22 Ap '15; Abstract, with discussion. *Elec R & W Elec'n* 66:781-2 Ap 24 '15; Discussion. *Am Inst E E Pro* 34:2895-914 N '15

Compact spud hoist eliminates costly equipment. *il* Eng Rec 72:879 N 27 '15

Electrical appliances for workshops. *il* diag Engineer 119:620-2; 120:40-1, 54-6 Je 25, JI 9-18 '15

Erecting 40-ton girders at a height of 250 feet above the street. *il* diag Eng Rec 70:699-702 D 26 '14

Erecting 36-ton girders with steel shears. *il* Eng Rec 70:606 D 5 '14

Features of the electrical equipment for the Granite mountain hoist. G. B. Rosenblatt. *il* diag Assn Eng Soc J 54:199-209 My '15

French electric mine hoist. *il* Colliery 35:468-70+ Ap '15

Hamilton electric incline railway. *il* Elec Ry J 48:115-16 JI 17 '15; Same. *Eng N* 74:49-51 JI 8 '15; Same. *Ry R* 57:313-14 Ag 14 '15

Hamilton incline railway. *il* Munic J 39:41-2 JI 8 '15

Hoist for reinforcing-steel. H. DaCamara. *diag Eng N* 73:395 F 25 '15

Hoist on revolving headframe operates drag-line. *il* diag plan Eng Rec 71:742-3 Je 12 '15

Line disturbance caused by special squirrel-cage and wound-rotor motors when starting elevators and hoists. J. C. Lincoln. *diag Am Inst E E Pro* 34:421-31 Mr '15; Discussion. 34:2847-50 N '15

Men and machinery of the Comstock—pioneer hoisting works. G. W. Dickle. *il* Eng & Min J 98:1130-4 D 26 '14

Rational basis of comparison of the duties of electrical elevators and hoisting engines. A. M. Coyle. *Am Soc M E J* 87:395-400 JI '15

Theory of the bucket elevator. L. Kresser. *Eng & Min J* 100:478-9 S 18 '15

Using a pneumatic drill motor as a hoisting engine. V. T. Kropidowski. *diag Ry Age* 59:960 N 19 '15

See also Buckets; Cableways; Conveying machinery; Cranes, derricks, etc.; Electric shovels; Elevators; Lifting magnets; Mine hoisting; Mining machinery; Ore handling; Rope

Control

Alternating-current controllers for steel mills. A. Simon. *diag Am Inst E E Pro* 34:748-9 My '15; Same. *Iron Tr R* 57:523 S 16 '15

Control of direct current hoists in iron and steel mills. G. E. Stoltz and W. O. Lum. *il* diag Am Inst E E Pro 34:723-9 My '15; Discussion. 34:2947-65 D '15

Direct-current control for hoisting equipment in industrial plants. W. T. Snyder. *diag Am Inst E E Pro* 34:695-710 My '15; Same (How to buy hoist controllers). *Iron Tr R* 56:871-4 Ap 29 '15; Same cond. *Engineer* 120:208-10 Ag 27 '15; Abstract, with discussion. *Elec R & W Elec'n* 66:780-1 Ap 24 '15; Discussion. *Am Inst E E Pro* 34:2947-65 D '15

Direct-current hoist equipment in industrial plants; discussion at meeting of A. I. E. E. *Elec W* 65:1124 My 1 '15

Electric hoists for the Michigan iron country. *il* Eng & Min J 99:742 Ap 24 '15

Holding companies

Consolidation of balance sheets in holding company accounting. A. W. Wright. *J Account* 19:21-33 Ja '15

Holiday printing. See Christmas printing

Holidays

Misusing holidays. H. D. Murphy. *Iron Age* 95:512 Mr 4 '15

Hollow tile

Hollow-tile partitions and floor arches tested. *diag Eng Rec* 71:432 Ap 3 '15

Interlocking tower of stucco on hollow tile, Rock Island lines. E. G. Zorn. *il* diag Ry R 57:108-9 JI 24 '15

Lateral strength of hollow-tile walls; tests at St. Louis. *il* diag Eng N 73:428-9 Mr 4 '15

Tile cottage with shingle roof. C. E. Anderson. *il* plans Bldg Age 37:19-24 O '15

Two-family house built of hollow tile. E. G. Zorn. *il* plans Bldg Age 37:47-52 JI '15

Holmes, Joseph Austin, 1859-1915

Sketch. *por* Iron Age 96:171 JI 15 '15; Eng & Min J 100:119 JI 17 '15; Eng N 74:188-9 JI 22 '15; Sci Am 113:82 JI 24 '15; Power 42:134-5 JI 27 '15; Colliery 36:42-3 Ag '15; Met & Chem Eng 13:519-20 Ag '15

Sketch. V. H. Manning. *por* J Ind & Eng Chem 7:712-15 Ag '15

Home market club

Annual meeting, Nov. 18, 1914. *Textile World* 48:302-4 D '14

Hominy

Lye hulling of corn for hominy. J. W. Marden and J. A. Montgomery. *J Ind & Eng Chem* 7:850-3 O '15

Hooke's law

Generalized form of Hooke's law. E. R. Hedrick. *Eng N* 74:542-3 S 16 '15

Hookworm disease

Rural school and the hookworm disease. *il* Sci Am S 79:164-5 Mr 13 '15

Hoover, Herbert Clark, 1874-

Sketch; abstract. W. Irwin. *Eng & Min J* 99:243-4 Ja 30 '15

Horsepower

Constants for converting electrical units to horsepower. C: S. Ohrenschaal. Mach 21:794 Je '15

Power formulas used for taxation in different countries. Automobile 32:160-1 Ja 21 '15
Relation of the horse-power to the kilowatt. Sci Am S 79:162-3 Mr 13 '15

See also Automobile engines—Horsepower

Horses

German war diet for horses. Sci Am 112:422+ My 1 '15

Horseshoes

Manufacture of a toe calk for horse shoes. Il Iron Age 96:805 O 7 '15

Horticulture

Waste heat to stimulate plant growth. Sci Am 113:445 N 20 '15

Hose

Care of fire hose. Munic J 37:888 D 17 '14
Woven fabric for fire hose. Il Textile World 49:428-6 J1 '15

Hose couplings

Coupling for compressed air hose. Il Iron Age 96:83 J1 8 '15; Elec Ry J 46:194 J1 31 '15; Foundry 43:329 Ag '15
Dimension standards for brass hose couplings. P. W. Blair. Metal Ind n s 13:111 Mr '15
National standard hose couplings and fittings for public fire service. Il diags U S Bur Stand Circ 50:1-23 '14; Summary. Sci Am S 79:304 My 8 '15
Standard hose couplings. Munic J 39:580 O 14 '15

Hosiery

Aniline black on cotton hosiery. E. C. T. Bick. Textile World 48:533-4 F '15
Garter loop stocking. Il diags Textile World 49:111-12 Ap '15
Improved stocking. diags Textile World 48:340-2, 617; 49:676-7 D '14, Mr, S '15
Manufacture of athletic hose. Il Textile World 48:418-20 Ja '15
Merchandising of hosiery and underwear. C. C. Parlin. Textile World 49:sup265+ My '15
Paramount metal forms for hosiery. Textile World 48:339-40 D '14
Pointex full fashioned heel. diag Textile World 48:417-18 Ja '15
Reinforced knit fabric. diags Textile World 49:544-6 Ag '15
Removing stockings from boards. Il Textile World 50:104-6 O '15
Straight hosiery frame. diags Textile World 49:673-4 S '15
Thirty years' retrospect and prospect of hosiery. F. L. Chipman. Textile World 48:515-18 F '15
Weights of hosiery. Textile World 49:546; 50:109 Ag, O '15

Hosiery machines

Fancy hosiery on full fashioned machines. diags Textile World 49:674-5 S '15
Proctor automatic boarding, drying and stripping machine for hosiery. Il Textile World 49:282 My '15
Seamless stocking machine. W. T. Wallis. Sci Am 113:271 S 25 '15

Hospital cars

Ambulance train on a British railway. Il Eng M 48:876-8 Mr '15; Eng N 73:1203 D 17 '14
Exchange of severely wounded prisoners. Il Sci Am 113:285 O 2 '15
Turning French freight cars into hospitals. W. S. Hiatt. Il Ry Age 59:329-30 Ag 20 '15
War hospital cars in Germany. Il Elec Ry J 45:50-1 Ja 2 '15

See also Hospital trains

Hospital ships

Floating hospitals of Europe. A. Gradenwitz. Il Sci Am 113:298-9 O 2 '15

Hospital trains

How French hospital trains help to save the wounded. W. S. Hiatt. Il plans Ry Age 59:689-92 O 8 '15

See also Hospital cars

Hospitals

American hospital development. E: F. Stevens. Il plans Arch Rec 38:641-61 D '15
Highland private hospital, Fall River, Mass.; views and plans. Brickb 23:pl 180-1 D '14

Hospital signal-lighting system. diag Elec W 66:1219 N 27 '15

Importance of background in the operating theatre. B. Moynihan. Illum Engr 8:462 N '15

New General hospital at Cincinnati. J. R. Schmidt. Il plan Arch Rec 37:453-53 My '15
Practical suggestions for planning and equipment of hospitals. M. E. McCalmont. Il plans Brickb 24:67-70 Mr '15

Ward-cooling plant in a hospital. A. M. Feldman. Il plans Am Soc Heat & V E 20:74-9 '14; Same. Metal Work 81:336-8 F 27 '14; Same cond. Heat & Ven 11:21-3 F '14
Warren state hospital power plant. W. O. Rogers. Il diags plan Power 42:364-5, 408-12 S 14-21 '15

See also Convalescent homes; Tuberculosis, Hospitals and sanatoriums for

Electric equipment

Scottish hospital installation. Elec R & W Elec'n 67:337 Ag 21 '15
Wilkes-Barre hospital contract. Elec R & W Elec'n 66:199 Ja 30 '15

Heating and ventilation

Heating and ventilating hospital building. C: L. Hubbard. Il plans Metal Work 83:630-1 Ap 30 '15

Hospital ventilation from the engineer's point of view. A. K. Ohmes. Heat & Ven 11:22-7 D '14

Plumbing and heating in Burke home. Il plans Metal Work 83:595-8 Ap 23 '15

Plumbing and heating in Cincinnati hospital. K. C. Cardwell. Il plan Dom Eng 71:212-14 My 22 '15

Sewerage

Design, cost and operation of new sewage treatment plant at the state hospital, Warren, Pa. P. E. Mebus and F. R. Berlin. plans Eng & Contr 43:265-8 Mr 24 '15

Hospitals, Factory

Shop hospitals. Il Am Ind 15:sup1-4 Je '15

Hospitals, Military

American ambulances in the field. Il Automobile 32:266-9 F 11 '15

See also Hospital cars; Hospital ships; Hospital trains

Hot air engines. See Air engines

Hot blast stoves. See Blast furnace stoves

Hot Springs, Arkansas

Fordyce bath house. Il plans Brickb 24:283-4 N '15

Hot springs. See Springs

Hot water heating

Advantage of down-feed hot water heating. I. N. Evans. Heat & Ven 12:40 Ag '15

Auxiliary heating system. plan Dom Eng 73:208 N 13 '15

Central heating with forced hot water. Il plans Metal Work 84:139-40+, 177-8 J1 30- Ag 6 '15

Chart for determining size of pipe for gravity hot-water heating systems; with discussion. M. S. Cooley. Am Soc Heat & V E 19:377-90 '13

Combined heating and sprinkler system for a factory building; Wheelock, Lovejoy & co., Cambridge, Mass. C: L. Hubbard. Il plans Heat & Ven 12:13-17 O '15

Comfort in a country mansion. Il plans Metal Work 83:306-9 Je 4 '15

Determination of pipe sizes for hot water heating systems. F. E. Giesecke. Il diags Dom Eng 73:166-8, 201-4 N 6-13 '15

District heating with open heater. T: Wilson. Il plan Power 42:44-7 J1 13 '15

Elizabeth hospital hot water heating plant. Heat & Ven 11:51-3 D '14

Flexible central-heating system. H. A. Woodworth. plan Elec W 65:937 Ap 10 '15

Forced hot water heating system. E. Lippe. diags Dom Eng 70:302-4 Mr 6 '15

Heat generators and velocity problems. Metal Work 82:759+ D 11 '14

Heating a garage. plan Metal Work 84:16-17 J1 2 '15

Hot water heating—Continued

- Heating greenhouses by hot water. G: W. Loeber. diags Dom Eng 70:399-401; 71:31-3, 124-6, 244-6, 362-6 Mr 27, Ap 10, My 1, 29, Je 26 '15
- Heating radiator from water back. II Metal Work 84:284 Ag 27 '15
- Heating system for a garage. plans Dom Eng 72:376 S 25 '15
- Hot water heating for mills. R. S. Parks. Textile World 50:240-3 N '15
- Hot water heating on a large scale; central heating plant for the State school of agriculture, Farmingdale, Long Island. II diags plans Heat & Ven 12:13-22 N '15
- Hot water heating radiation formula. N. J. Serrill. Metal Work 84:305 S 3 '15
- Hot-water heating system at Grand Central terminal. W. G. Carlton. Power 42:245-6 Ag 17 '15
- Hot water heating system for garages. II Dom Eng 72:228-9 Ag 21 '15
- Hot water radiators at boiler level. diags Metal Work 83:184-6 Ja 29 '15
- Locating overloaded sections in a central-heating system. H. A. Woodworth. Elec W 66:1123-4 My 1 '15
- Plumbing and heating in Burke home. II plans Metal Work 83:595-8 Ap 23 '15
- Rules for figuring hot water radiation. A. J. Lowndes. Metal Work 84:618-19 N 12 '15
- Suggested formula for calculating the necessary amount of radiation for heating rooms by hot water, particularly applicable to the heating of all-gas kitchens, by hot water from a furnace coil or a water heater; with discussion. J. A. Donnelly. Am Soc Heat & V E 20:294-8 '14
- Time element in heating a building. Heat & Ven 12:16-8 Mr '15
- Two hot water supply problems. diags Dom Eng 70:242-3 F 20 '15
- See also Radiators*

Rates

- New rate schedule for hot water heating in Toledo, Ohio. Heat & Ven 11:50-1 D '14
- Hot water supply**
- Barber shop hot-water system. plan Metal Work 84:486-7 O 8 '15
- Combination hot water supply and hot water heating system. diags Dom Eng 73:141 O 30 '15
- Connecting a range boiler to a tank heater and furnace coil. diags Dom Eng 72:288 S 4 '15
- Expansion in hot water supply pipes. II diags Metal Work 83:505-+ Ap 2 '15
- Explosion of hot-water tank. H. E. Collins. II diag Power 41:451-2 Mr 30 '15
- Hot water supply system. diags Dom Eng 73:170-1 N 6 '15
- Hot water supply system that will not circulate. diags Dom Eng 73:237-8 N 20 '15
- Methods of range boiler connections. diags Dom Eng 71:159-60 My 8 '15
- Pipe surface required for heating water. Power 41:209 F 9 '15
- Plumbing installation and sewage disposal. C: A. Whittemore. II plans Brickb 24:137-40 Je '15
- Question about hot water supply connections. plan Dom Eng 72:345-6 S 18 '15
- Range-boiler connections work right. diags Dom Eng 73:143 O 30 '15
- Range boiler installation. plans Dom Eng 73:74-5 O 16 '15
- Sediment deposits in stove waterbacks. II Metal Work 84:205-7 Ag 13 '15
- Unsatisfactory hot water supply system for barber shop. diags Dom Eng 72:289 S 4 '15
- Water becomes too hot in range boiler. plans Dom Eng 73:207-8 N 13 '15
- See also Electric water heaters; Gas water heaters; Water heaters*

Hotels

- Construction work on Traymore hotel, Atlantic City. II plan Eng N 74:80-1 Jl 8 '15
- From managers to ballrooms; Gedney Farm Hotel, White Plains, N. Y. W. H. Cooley. II Arch & Bldg 47:85-8 Mr '15
- Gedney Farms, White Plains, N. Y. Arch Rec 38:896 D '15

- Hotels and fires. E: R. Hardy. Arch & Bldg 47:126-8 Mr '15
- Reinforced-concrete frame of Hotel Traymore erected at rate of a floor a week. II plans Eng Rec 72:50-1 Jl 10 '15

Designs and plans

- Hotel building. II plans Arch & Bldg 47:104-25 Mr '15
- Hotel Statler, Detroit, Mich. Brickb 24:pl 50-3 Ap '15
- Hotel Statler, Detroit, Mich. II plans Arch & Bldg 47:89-101 Mr '15
- Hotel Statler in Detroit. W. S. Wagner. II plans Arch Rec 37:320-39 Ap '15
- Largest fireproof resort hotel in the world completed at Atlantic City. II diags Eng Rec 72:11-13 Jl 8 '15
- New Traymore hotel at Atlantic City. II diags Eng N 74:18-23 Jl 1 '15

Heating and ventilation

- Heating and ventilating modern hotels. N. L. Schloss. Power 42:212-13 Ag 10 '15
- Kitchen ventilation for a modern hotel; equipment of the Biltmore, New York. II diags plan Heat & Ven 12:13-18 Ja '15

Lighting

- Halation and hostilities. F. L. Godinez. Arch & Bldg 47:102-3 Mr '15

Power plants

- Former engineer of La Salle hotel defends his administration. J. E. Lawrence. Power 41:63-5 Ja 12 '15
- Large saving in Hotel La Salle plant. W. W. Bird. Power 41:99-101 Ja 19 '15
- New Morrison hotel plant, Chicago. T. Wilson. II plans Power 42:70-3, 111-15 Jl 20-27 '15

Hours of labor

- Eight-hour day. C. J. Morrison. Eng M 50:363-6 D '15
- Hours of service act interpreted as to telephone communications. Ry Age 59:496-7 S 17 '15
- Many New England shops on shorter hours. Iron Age 98:350-1 O 7 '15
- Work-day shortened and output maintained in forge shop of Cleveland hardware company. Iron Age 95:537-8 Mr 4 '15

House decoration

- Diffusing media; interior furnishings. Illum Eng Soc 10:397-402 no 5 '15
- Recent interiors by Thornton Chard; views. Arch Rec 37:177-86 F '15
- Use of native woods for interior finish. C. M. Price. II Brickb 24:217-22, 239-42, 285-9 S-N '15
- See also Fireplaces; Mantles; Mural painting and decoration*

- House drainage. *See Drainage, House; Plumbing*
- House files. *See Files*

- Houses. *See Apartment houses; Architecture, Domestic; Cottages; Country houses; House decoration; Housing problem*

- Houses, Concrete. *See Concrete houses*

- Houses, Duplex. *See Duplex houses*

- Houses, Historic. *See Historic houses*

- Houses, Steel

- Steel frame houses for miners. II plans Colliery 35:566-8 My '15

- Housewiring campaigns. *See Electric service companies—Advertising*

Housing problem

- Canvastown for government employees in New South Wales. II Sci Am 112:479 My 22 '15

- Ellen Wilson Memorial homes to be erected at Washington. D. C. G: B. Ford. II plans Am Inst Arch J 3:352-7 Ag '15

- Factory city beautiful at low cost, Badin, N. C. II plans Iron Age 95:782-6 Ap 8 '15

- Housing and sanitation at Mineville. S. Lefevre. II diags plans Am Inst Min E Bul 98: 227-33 F '15

- Housing reform in Belgium. C. Aronovici. II Am Inst Arch J 2:563-72 D '14

- Housing reform in France. C. Aronovici. Am Inst Arch J 3:32-6 Ja '15

Housing problem—Continued

- Housing reform in Italy. C. Aronovici. *Am Inst Arch J* 3:89-93 F '15
 Improvement in housing workmen; steps to be taken by Pennsylvania. *Bldg Age* 37:83 Mr '15
 Industrial betterment. F. E. Cardullo. *Mach* 22:193-5 N '15
See also Apartment houses; City planning; Garden cities
 Houston, Texas

Bridges

- Design and construction of the San Jacinto street reinforced concrete bridge. *Il diag Eng & Contr* 42:492-5 N 25 '14

Electricity supply

- Co-operative lighting franchise. P. H. Sheldon. *Munic Eng* 48:41-3 Ja '15

Railroads

- Factors in grade separation. *Eng N* 73:422-3 Mr 4 '15

Howitzers. See Guns (ordnance)**Hudson river**

- Long-term variations in stream flow, Croton and Hudson rivers. E. H. Sargent. *Eng N* 72:1119 D 3 '14

Hughes induction balance

- Detecting buried shells with induction balance. *Sci Am* 113:425+ N 13 '15
 Use of the Hughes induction balance for locating bullets. *diag Elec W* 65:167 Ja 16 '15

Hulling. See Corn**Humidity**

- Air conditioning; abstract. J. I. Lyle. *Am Soc M E J* 37:290 My '15
 Air we breathe—a study of temperature, humidity and dust content. T. Hubbard. *Heat & Ven* 13:22-5 Ja '15
 Control of humidity in pressrooms. *Inland Ptr* 55:675-6 Ag '15
 Cooling water of condensation; introduction to a collection of psychrometric tables for cooling tower work. *Textile World* 49:692-4 S '15
 Effect of relative humidity on an oak tanned leather belt. W. W. Bird and F. W. Roys. *Il Am Soc M E J* 37:447-9 Ag '15; Same. *Iron Tr R* 56:1315-17 Je 24 '15; Same. *Power* 42:169-71 Ag 3 '15; Summary. *Iron Age* 96:26-7 Ji 1 '15; Discussion. *Am Soc M E J* 37:449-51 Ag '15
 Experiments on humidifying air at the Oliver Wendell Holmes school; with discussion. C. F. Eveleth. plans *Am Soc Heat & V E* 19:109-27 '13
 Humidifying mine air. J. W. Reed. *Colliery* 35:330-2 Ja '15
 Humidity control of warm air furnaces. C. E. Stewart. *diag Metal Work* 33:80 Ja 1 '15
 Humidity of mine air. *Colliery* 35:302 Ja '15
 Humidity of mine air. R. Y. Williams. *Il map U S Bur Mines Bul* 83:1-63 '14
 Lecture course on elements of heating. C. A. Fuller. *Il Metal Work* 84:430+, 533+ O 1, N 5 '15
 Measurements for the household. *U S Bur Stand Circ* 55:108-11 '15
 Properties of saturated air. W. D. Ennis. *Power* 41:402-4 Mr 23 '15

Humins

- Origin of the humin formed by the acid hydrolysis of proteins. R. A. Gortner and M. J. Blish. *Am Chem Soc J* 37:1030-6 Je '15

Humphrey pumps

- First large American-built Humphrey pump. C. C. Trump. *Il diag Power* 40:767-70 D 1 '14; Same. *Eng N* 73:154-8 Ja 28 '15; Abstract. *Ind Eng* 15:28-7 Ja '15
 Humphrey pump: recent developments. C. C. Trump. *Il diag Sibley J* 80:55-9 N '15

- Irrigation by pumping at Del Rio, Texas. A. Potter. *Il diag plan Eng & Contr* 43:66-71 Ja 27 '15; Same abr. *Eng Rec* 71:596-8 My 8 '15

Humphreys, Alexander C., 1851-

- President Humphreys. A. S. Miller. *Stevens Ind.* 32:11-18 Ja '15

Hunt, Andrew Murray, 1859-

- Sketch. por *Eng M* 50:215 N '15

Hunting

- Hunting on the national forests. H. A. Smith. *Il Am For* 21:172-82 Mr '15

Huntington-Heberlein process

- Lead smelting at El Paso. H. F. Easter. *Am Inst Min E Bul* 104:1493-1506 Ag '15; Excerpts. *Eng & Min J* 100:386-7 Ag 28 '15; Abstract. *Met & Chem Eng* 13:814 N 1 '15

Hunt's Point terminal. See New York (city)—Wharves**Hurricanes**

- Cause and prevention of storm erosion on Gulf coast. G. O. Case. *Il Eng N* 74:1072-5 D 2 '15
 Engineering aspects of New Orleans hurricane. W. H. P. Creighton. *Eng N* 74:710 O 7 '15

- Meteorology of West Indian hurricane, Sept. 22-Oct. 2. *Eng N* 74:710-12 O 7 '15

- New Orleans record for succession of storms broken. map *Eng Rec* 72:562-3 N 6 '15

See also Galveston—Hurricane, 1915

Hybridization

- Artificial production of vigorous trees. *Sci Am S* 79:150 Mr 8 '15
 Experiments in hybridizing Japanese flowers. W. P. Jenny. *Sci Am S* 79:13-19 Ja 9 '15

Hydantoins

- Researches on hydantoins; a new method of synthesizing glycoxyamidine compounds, and the conversion of glycoxyamidine into isomers of creatinine. T. B. Johnson and B. H. Nicolet. *Am Chem Soc J* 37:2416-26 O '15
 Researches on hydantoins; a new synthesis of *o*-tyrosine. T. B. Johnson and W. M. Scott. *Am Chem Soc J* 37:1846-56 Ag '15
 Researches on hydantoins; geometrical isomerism in the hydantoin series. T. B. Johnson and S. E. Hadley. *Am Chem Soc J* 37:171-7 Ja '15

- Researches on hydantoins: stereoisomeric modifications of benzalhydantoin. T. B. Johnson and J. S. Bates. *Am Chem Soc J* 37:383-5 F '15

- Researches on hydantoins; synthesis of the hydantoin of 2-hydroxy-5-aminophenylalanine. T. B. Johnson and W. M. Scott. *Am Chem Soc J* 37:1856-63 Ag '15

- Researches on hydantoins; the condensation of cinnamic aldehyde with hydantoins. T. B. Johnson and R. Wrenshall. *Am Chem Soc J* 37:2133-44 S '15

- Researches on hydantoins; the interaction of hippuric acid with thiocyanates. T. B. Johnson, A. J. Hill and B. H. Bailey. *Am Chem Soc J* 37:2406-16 O '15

- Researches on hydantoins; the synthesis of 1,3,4-trisubstituted hydantoins from diethyl aminomalonate. T. B. Johnson and N. A. Shepard. *Am Chem Soc J* 36:1735-42 Ag '14

Hydrants

- Care of hydrants in winter. P. Gear. *Munic J* 28:106 Ja 28 '15

- Cincinnati high-pressure fire hydrants. *diags Eng N* 74:153 Ji 22 '15

- Design details of the Cincinnati high pressure fire system. *diags Eng & Contr* 43:529-32 Je 16 '15

- Equitable hydrant rentals and better methods for apportioning fire protection cost. J. W. Alford. *Am Water Works Assn J* 1:95-102 Mr '14; Same. *Eng & Contr* 41:579-80; My 20 '14; Same. *Munic J* 38:850-2 Je 11 '14; Same cond. *Eng Rec* 69:586-7 My 23 '14; Discussion. *Am Water Works Assn J* 1:538-45, 697-703 S-D '14

- Hydrant tests in Chicago indicate cheaper maintenance possibilities. *Il Eng Rec* 71:483-4 Ap 17 '15

- Hydrant-thawing apparatus. *Il diag Munic Eng* 49:117-18 S '15

Hydrates

- Method of determining the hydrates formed by a salt. H. W. Foote. *Am Chem Soc J* 37:283-92 F '15

Hydration

- High-strength concretes produced through lowering of surface tension of mixing water. N. C. Johnson. *Il Eng Rec* 71:320-4 Mr 13 '15

Hydration—Continued

Hydration of Portland cement. A. A. Klein and A. J. Phillips. *pls U S Bur Stand Tech Pa* 48:3-71 '14; Abstract. *J Fr Inst* 178:686-9 N '14

Mechanical features of the hydration of Portland cement and the making of concrete as revealed by microscopic study. N. C. Johnson. *II Am Soc M E J* 37:516-25 S '15; Abstract. *Eng M* 49:744-5 Ag '15; Discussion. *Am Soc M E J* 37:525-3 S '15

Hydration of lons. See Solution (chemistry)

Hydraulic cartridge. See Hydraulic mining cartridge

Hydraulic engineering

Concrete chute drops water 130 feet from canal to reservoir. D. W. Cole. *II diags Eng Rec* 71:456-7 Ap 10 '15

San Francisco's notable engineering works. *II Eng Rec* 71:233-3 F 20 '15

See also Aqueducts; Breakwaters; Bridges—Foundations and piers; Caissons; Canals; Channels; Cofferdams; Culverts; Dams; Docks; Drainage; Dredges; Dredging; Dredging machinery; Embankments; Engineering; Flood control; Flumes; Harbors; Hydraulic excavation; Hydraulic machinery; Hydraulic mining; Hydraulics; Hydroelectric plants; Irrigation; Levees; Pumping stations; Pumps; Reclamation of land; Reservoirs; Rivers—Regulation; Sea walls; Surge tanks; Turbines; Water; Water flow; Water power; Water supply engineering; Water wheels; Wells; Wharves

Hydraulic excavation

Handling hydraulic fill on Plute dam. J. Jensen. *II diags Eng Rec* 72:80-1 J1 17 '15

Stripping of gravel pits by hydraulic methods. W. H. Wilms. *diags Ry Age* 58:1430-3 Je 18 '15

Hydraulic machinery

Banding projectiles. *II diag Iron Age* 96:466 Ag 26 '15

Conradson hydraulically operated, six-spindle, vertical, automatic chucking, boring and turning machine. *II Iron Tr R* 56:920-2 My 6 '15

Emergency hydraulic jack. *diag Power* 40:877 D 22 '14

Hydraulic press for bearing and bushing changes. E. L. Stephens. *II Elec Ry J* 46:282 Ag 14 '15

Hydraulic shrapnel billet piercing press. *II Mach* 21:682-3 Ap '15

Hydraulic wheel and armature presses. *Elec Ry J* 46:323-4 Ag 21 '15

Increasing the output of hydraulic presses. *Elec Ry J* 45:1170 Je 19 '15

Machines for breaking pig iron. *II Iron Tr R* 56:1069 My 27 '15

Making tunnel shield jacks. *II Iron Age* 95:502 Mr 4 '15

75-ton self-contained hydraulic broaching and forcing press. *II Ind Eng* 14:401 O '14

Shell nosing and banding presses. *II Iron Age* 96:417 Ag 19 '15

60-ton hydraulic forcing press. *II Iron Age* 95:1393 Je 24 '15

See also Hydraulic engineering; Pumping machinery; Turbines; Water wheels

Hydraulic mining

Bagley scraper for gravel mining in Alaska. L. H. Eddy. *II Eng & Min J* 100:257-8 Ag 14 '15

Comparative hydraulic-mining methods. L. H. Eddy. *Eng & Min J* 99:481-3 Mr 13 '15

Cost of hydraulic sand and gravel mining. R. J. Borhek. *Eng & Contr* 43:573-4 Je 30 '15

Development methods at Fairbanks. H. I. Ellis. *II diags Eng & Min J* 99:1023-9 Je 12 '15

Elevating placer tailings with a Hayward bucket. H. I. Ellis. *Eng & Min J* 100:309-10 Ag 21 '15

Gold Bar hydraulic mine. Blewett, Wash. H. I. Ellis. *diags Eng & Min J* 100:878-9 O 23 '15

Gold recovery at placer mines. D. F. Carver. *II Eng & Min J* 100:472-3 S 18 '15

Hydraulic mining at Circle. H. I. Ellis. *Eng & Min J* 98:1104-5 D 19 '14

Hydraulicking at Waldo, Ore. W. H. Wright. *II Eng & Min J* 100:211-14 Ag 7 '15

Koyukuk placer-mining district. *Eng & Min J* 99:1021-2 Je 12 '15

Opportunity in placer mining. C. Hartley. *Eng & Min J* 99:185-8 Ja 23 '15

Placers of Antioquia, Colombia. R. W. Perry. *II map Eng & Min J* 100:586-9 O 9 '15

Rocker and grizzly mining on the north Saskatchewan. J. A. Macdonald. *diags Eng & Min J* 100:187-3 J1 31 '15

Thawing methods at Fairbanks. H. I. Ellis. *II diags Eng & Min J* 100:1-6 J1 3 '15

United States mining statutes annotated. J. W. Thompson. *U S Bur Mines Bul* 94:pt 2, 941-5 '15

Yakataga beach placers. A. G. Thompson. *II Eng & Min J* 99:763-5 My 1 '15

See also Gold dredging; Gold mines and mining

Hydraulic mining cartridge

Hydraulic cartridge. J. Tonge. *diag Eng M* 49:606 J1 '15

Hydraulic mining cartridge for breaking rock. *Eng Rec* 71:28 Ja 2 '15

Mechanical device for use where explosives are impossible. J. Tonge. *II diags Sci Am S* 79:156-8 Mr 6 '15

Hydraulic motors

See also Turbines; Water wheels

Hydraulic power. See Hydraulic machinery; Hydroelectric plants; Water power

Hydraulic rams

Action of the hydraulic ram. plan Dom Eng 71:369 Je 26 '15

Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. *diags Dom Eng* 72:284-6 S 4 '15

Hydraulic stowage. See Mine timbering

Hydraulic transmission

Hydraulic transmission. *diags Horseless Age* 36:234-5 F 17 '15

Hydraulic valves. See Valves, Hydraulic

Hydraulics

Circular sewers versus egg-shaped, catenary and horseshoe cross-sections. R. D. French. *Eng Rec* 72:222-3 Ag 21 '15

Comparing sewer sections. B. Brooks; R. S. Beard. *89 diags Eng Rec* 73:608-10 N 13 '15

Constructing logarithmic charts for hydraulic formulas. L. G. Hall. *Eng & Contr* 44:31-2 J1 14 '15

Design of turbine draft tubes analyzed. A. G. Hillberg. *Eng Rec* 72:604-7, 630-1 N 13-20 '15

Hydraulic jump, in open-channel flow at high velocity. abstract. K. R. Kennison. *Am Soc M E J* 37:655 N '15

Hydraulics of irrigation, drainage, and other channels. L. Schmeer. *Eng & Contr* 42:284-90 S 23 '14

Influence of disk friction on turbine pump design. F. zur Nedden. *diags Am Soc M E J* 37:538-44 S '15; Abstract. *Int Marine Eng* 20:386 Ag '15; Discussion. *Am Soc M E J* 37:545-6 S '15

Logarithmic diagram plotting of hydraulic formulas. W. A. Lyon. *Eng & Contr* 43:239 Mr 17 '15

Models, properly designed, show correctly performance of dams and turbines. B. F. Groat. *Eng Rec* 72:877-8 S 25 '15

Nomographic charts for Kutter's formula. G. S. Coleman. *Eng Rec* 72:489 O 16 '15

Relation of stream gaging to the science of hydraulics; abstract. C. H. Pierce and R. W. Davenport. *Am Soc M E J* 37:614 O '15

Table of circular and horseshoe conduit sections. *Eng N* 78:1182-3 Je 17 '15

Tests check computed values of surges; investigation at Tallulah Falls hydroelectric plant in Georgia indicate accuracy of formula commonly used. E. Lauchli. *diag Eng Rec* 71:378-9 Mr 20 '15

Transportation of debris by running water. R. T. Hancock. *Eng & Min J* 99:459-60 Mr 6 '15

See also Fluids; Hydraulic engineering; Hydraulic machinery; Hydrodynamics; Hydrometers; Nozzles; Rivers; Siphons; Stream flow; Stream measurement; Water; Water flow; Water power

Hydrazine

Action of monochloroacetic acid on semi-carbazide and hydrazine. J. R. Bailey and W. T. Read. *Am Chem Soc J* 36:1747-66 Ag '14

Chemical reactions in anhydrous hydrazine. T. W. B. Welsh and H. J. Broderick. *diags Am Chem Soc J* 37:825-32 Ap '15

Electrolysis of a solution of sodium hydrazide in anhydrous hydrazine. T. W. B. Welsh. *diag Am Chem Soc J* 37:497-508 Mr '15

Hydrazine diperchlorate

Description of the new compound, hydrazine diperchlorate. J. W. Turrentine. *Am Chem Soc J* 37:1122-8 My '15

Hydrazine salts

Behavior of certain hydrazine salts on decomposition by heat. J. W. Turrentine. *Am Chem Soc J* 37:1105-14 My '15

Hydrazine sulfate

Electrochemical oxidation of hydrazine sulfate and ammonium hydroxide. J. W. Turrentine and J. M. Olin. *Am Chem Soc J* 37:1114-22 My '15

Hydrazinodiacetic acid

New synthesis of iminoacetoneitrile and its conversion to hydrazinodiacetic acid. J. R. Bailey and D. F. Snyder. *Am Chem Soc J* 37:935-42 An '15

Hydrocarbons

Action of chloral, bromal and benzaldehyde on the polycyclic hydrocarbons in the presence of aluminium chloride. G. B. Frankforter and W. Kritchewsky. *Am Chem Soc J* 37:385-92 F '15

Action of trioxymethylene on the various hydrocarbons in the presence of aluminum chloride. G. B. Frankforter and V. Kokatnur. *Am Chem Soc J* 37:2399-401 O '15

Estimation of aromatic hydrocarbons in cracked petroleum. W. F. Rittman, T. J. Twomey and G. Eglott. *Met & Chem Eng* 18:632-6 O '15

Heats of combustion of aromatic hydrocarbons and hexamethylene. T. W. Richards and F. Barry. *Am Chem Soc J* 37:993-1020 My '15

See also Azulene

Hydrochloric acid

Method for the precise standardization of hydrochloric acid solutions. L. W. Andrews. *Am Chem Soc J* 36:2089-91 O '14

Modification of starch by gaseous hydrochloric acid. F. C. Erary and A. C. Dennis. *J Ind & Eng Chem* 7:214-16 Mr '15

Physiological activity of combined hydrochloric acid. J. H. Long. *Am Chem Soc J* 37:1288-47 My '15

Hydrocyanic acid

Determination of small quantities of hydrocyanic acid. A. Viehoever and C. O. Johns. *Am Chem Soc J* 37:601-7 Mr '15

Hydrodynamics

Suction between passing ships. S. A. Reeve. *diags Sci Am S* 79:30-2, 46-8 Ja 9-16 '15

Hydroelectric plants

Design of turbine draft tubes analyzed. A. G. Hillberg. *Eng Rec* 72:604-7, 630-1 N 13-20 '15

Developments in the hydroelectric field in 1914. D. W. Mead. *Eng Rec* 71:6-7 Ja 2 '15

Four years operating experience on a high-tension transmission line. A. Bang. *diags pls Am Inst E E Pro* 34:1425-45 J1 '15

Hydroelectric development, with discussion. H. Flood, Jr. *Elec W* 65:1267-9 My 15 '15

Hydro-electric plant at a Bolivian tin mine. M. R. Lamb. *Il Eng & Min J* 92:7-9 Ja 2 '15

Ice fighting is systematized at Holtwood hydroelectric plant. F. A. Allner. *Il diag map Eng Rec* 72:66-8 J1 17 '15

Intermittent waterfall; using the power of Niagara falls without impairing its scenic beauty. El Dunn. *Il Sci Am* 113:492-3+ D 4 '15

Operating hydro-electric plants without attendants. J. M. Wanchope. *Power* 41:407 Mr 23 '15

Operating results in a hydroelectric plant. *Elec R & W Elec'n* 66:810 F 13 '15

Outdoor hydroelectric generating plant. *diags plan Elec W* 66:689 S 25 '15

Severe frazil ice attack at Holtwood plant does not disturb service. F. A. Allner. *Il diag Eng Rec* 72:113-15 J1 24 '15

Tail-tunnel regulation suggests new opportunities in hydroelectric field. R. D. Johnson. *Eng Rec* 71:380 Mr 30 '15

Ten years' progress in the development of hydroelectric units. E. B. Ellicott and W. B. Jackson. *Elec R & W Elec'n* 66:1004 My 29 '15

Use of special gates to prevent ice formation at intake screens. *Il Elec W* 66:1030-1 N 6 '15

See also Dams; Electric transmission; Surge tanks

Auxiliary plants

A. I. El. discuss supply of energy from hydroelectric stations supplemented by supply from steam stations. *Elec W* 66:848 O 16 '15

Auxiliary steam plant of the Vancouver Island power company. H. W. Beecher. *Il plans Elec R & W Elec'n* 67:373-8 Ag 28 '15

Auxiliary steam power plant for Vancouver Island; steam turbine driven plant using oil fuel. W. L. Kidston. *Il plan Power* 42:534-8 N 9 '15

Combined operation of steam and hydraulic power in the Pennsylvania water and power company system. J. A. Walls. *Am Inst E E Pro* 34:2299-306 O '15

Electrical engineers hold hydro-electric session. *Power* 42:598 O 26 '15

Hydroelectric problems considered at Philadelphia meeting of American institute. *Elec R & W Elec'n* 67:763 O 23 '15

Owego, N. Y., light and power plant. G. Newell. *Il plan Power* 42:757-8 N 30 '15

Selling current on a small margin; a small water and steam plant. T. Wilson. *Il diags Power* 42:498-501 O 12 '15

Stand-by plant supplying steam to central heating system. G. Broil. *Power* 41:726 My 25 '15

Supplemental power for hydroelectric systems. J. F. Vaughan. *Am Inst E E Pro* 34:2307-19 O '15

Cost

Construction elements of the Tallulah Falls development. C. G. Adsit and W. P. Hammond. *Il diags Am Inst E E Pro* 34:2497-546 O '15; Abstract. *Elec W* 66:916-18 O 23 '15

Testing

Color used in hydraulic tests of power plants. R. Taylor. *diags Eng N* 74:617-20 S 23 '15

Plant tests of a low-head hydro-electric development. P. Nagler. *Il diag Eng N* 72:1193-8 D 17 '14

Tests check computed values of surges. El. Lauchli. *diag Eng Rec* 71:378-9 Mr 20 '15

Valuation

Unique problem in valuation; inheritance tax appraisal of the Hales Bar hydro-electric plant. L. L. Tribus. *Eng N* 73:884-5 F 25 '15

Alabama

Alabama power scheme. *Il plan map Engineer* 119:132-5 F 5 '15

Construction plant and methods for concrete work on the Lock twelve dam, Coosa river, Alabama. E. L. Sayers and A. C. Polk. *diags plan Eng & Contr* 43:260-5 Mr 24 '15

British Columbia

Coquitlam-Buntzen hydroelectric development. *Il Elec W* 66:175-7 J1 24 '15

California

Hydroelectric development on Bishop Creek, Cal. C. O. Poole. *Il diags plans Elec W* 64:757-61, 805-9, 858-63, 903-10, 949-53, 1001-3, 1045-7, 1093-4, 1143-7, 1193-6 O 17-D 19 '14

Interconnected systems serving San Francisco; details of the generating equipments and transmitting circuits tied in with the larger system of the Pacific gas & electric company, which covers half of California. *Il diags map Elec W* 65:1356-82 My 29 '15

Lake Spaulding hydroelectric development of the Pacific gas & electric co. R. L. Dougherty. *Il map Sibley J* 30:42-3 N '15

Los Angeles nears realization of city power plan. *Il Eng Rec* 72:167 Ag 7 '15

Hydroelectric plants—California—Continued

Saving eight million tons of coal a year; a hydro-electric development of Big Creek, California. *Il Sci Am* 112:332-3 Ap 24 '15
 Spaulding-Drum power development; with discussion. *J. A. Britton. Il diags Am Soc M E J* 37:215-23 Ap '15

Chile

Hydro-electric power plant in Chile. *R. E. G. Clark. Il diag Engineer* 118:597-9 D 25 '14

Georgia

Building the Mathis dams. *El. Lauchli. Il diags plans Eng N* 74:529-32, 589-91 S 16-23 '15
 Construction elements of the Tallulah Falls development. *C. G. Adgit and W. P. Hammond. Il diags Am Inst E E Pro* 34:2497-546 O '15

Guatemala

Hydro-electric installation on a coffee plantation. *J. H. Torrens. Il Gen Elec R* 18:219-22 Mr '15; Same cond. *Eng M* 49:266-7 My '15

Idaho

Federal power house, Boise, Idaho. *A. P. Connor. Il plans Power* 41:594-5 My 4 '15
 Federal project at Minidoka. *A. P. Connor. Il plans map Power* 41:422-5 Mr 30 '15
 Government furnishes cheap electricity in southern Idaho. *H. B. Walker. Power* 41:228-9 F 16 '15

Illinois

Report on water-power development of sanitary district of Chicago. *Elec R & W Elec'n* 65:1095-7 D 5 '14

India

Bombay hydro-electric scheme. *Il maps Engineer* 119:378 Ap 16 '15
 Bombay hydro-electric scheme. *A. Dickinson. plans diags maps Inst E E J* 53:693-714 My 15 '15; Abstract. *Elec W* 65:1302-3 My 22 '15; Discussion. *Inst E E J* 53:715-21, 802-4 My 15-Je 1 '15
 British India. *U S Sp Cons Rep* 72:100-3 '15

Italy

Hydroelectric enterprises in Italy. *L. W. Schmidt. Elec W* 66:1131 N 20 '15

Japan

Hydroelectric power from snowcapped Fujiyama. *C. Tsukamoto. Il diag map Elec W* 66:910-13 O 23 '15
 115,000-volt hydroelectric system in Japan. *Il diags plan Elec W* 65:1599-1606, 1671-8 Je 19-26 '15

Maine

Central-station development at Portland, Maine. *Il map Elec W* 65:519-22 F 27 '15
 Hydroelectric development at Rumford, Maine. *Il Elec W* 65:79-85 Ja 9 '15

Massachusetts

Discussion of the hydro-electric power plant at the Wachusett dam, Clinton, Mass. *Boston Soc C E J* 2:109-19 Mr '15
 Hydraulic redevelopment at Turners Falls. *H. M. Turner. Il diags Eng N* 74:202-6 J1 29 '15
 Hydro-electric power plant at the Wachusett dam, Clinton, Mass. *B. C. Thayer and El. R. B. Alardice. Il diags Boston Soc C E J* 1:523-48 D '14; Abstract. *Munic J* 88:101-3 Ja 28 '15
 Massachusetts hydroelectric companies. map *Elec R & W Elec'n* 67:160 J1 24 '15
 New plant marks further step in development of Deerfield river, Massachusetts. *Il diags map Eng Rec* 72:374-7, 423-4 S 25-O 2 '15

Michigan

Hydro-electric development of the Peninsular power co. *C. V. Seastone. Il diags plans Am Inst Min E Bul* 98:249-70 F '15

Minnesota

Coon Rapids low head hydro-electric development on the Mississippi river near Minneapolis. *J. W. Link. Il diags plan W Soc E J* 19:979-1006 D '14; Same cond. *Eng & Contr* 43:151-2 F 17 '15; Abstract. *Am Soc M E J* 87:193 Mr '15; Discussion. *W Soc E J* 19:1007-15 D '14

Montana

System of the Montana power company. *M. Hebgen. Il map Elec W* 65:1535-44 Je 12 '15

New England

Hydroelectric power in New England. *H. I. Harriman. Elec R & W Elec'n* 66:874 My 8 '15

New York (state)

Central hydroelectric plant of 50,000 horsepower replaces inefficient separate units at Cohoes. *A. G. Hillberg. Il diags maps Eng Rec* 71:352-4, 395-8 Mr 20-27 '15
 Cohoes, N. Y., hydro-electric development. *W. O. Rogers. Il plans Power* 42:466-71 O 5 '15
 Hydroelectric development at Cohoes, N. Y. *Il diags plan Elec W* 65:718-22 Mr 20 '15
 Hydro-electric development of the Cohoes company at Cohoes, N. Y. *B. R. Connell. Il diags plans map Gen Elec R* 18:340-52 My '15
 Redevelopment of old canal power at Cohoes Falls, N. Y. *Il plan Eng N* 73:456-9 Mr 4 '15
 Salmon river power plant. *W. O. Rogers. Il plans Power* 41:320-6 Mr 9 '15
 Water-power plant in the heart of Rochester, N. Y. *Il Elec R & W Elec'n* 66:1162 Je 19 '15

New Zealand

Hydro-electric developments in New Zealand. *Il Engineer* 119:447-8 My 7 '15
 Hydro-electric power in New Zealand. *W. Wilson. Il map Eng M* 49:336-51 Je '15
 Interesting hydro-electric plant in New Zealand. *Il Engineer* 120:254-5 S 10 '15

Oregon

5000-hp. chain drive for a hydro-electric plant. *diags Eng N* 74:544-5 S 16 '15

Pacific coast

Electric developments on the Pacific coast. *Il Elec W* 65:1387-98 My 29 '15
 Hydroelectric development in the West. *Elec W* 65:1514-15 Je 12 '15
 Possibilities of hydro-electric power in the Pacific northwest. *G. H. Moore. Eng N* 73:342-3 F 18 '15
 Practice in high-head hydraulic plants; abstract. *J. P. Jollyman. Elec W* 65:1513 Je 12 '15

Panama

Electricity in the construction and operation of the Panama canal. *E. Schildhauer. Il Gen Elec R* 18:sup638-721 J1 '15

Pennsylvania

Ten per cent efficiency increase follows change from double to single-runner turbine. *Il diags Eng Rec* 71:366-7 Mr 20 '15

Quebec

Cedars hydro-electric development, St. Lawrence river. *Il diags plan Eng N* 73:566-73 Mr 25 '15
 Concrete-unit building construction at Cedars Rapids. *Il diags Eng N* 73:675-7 Ap 8 '15
 Turbines of the Cedars hydro-electric plant. *Il diag Eng N* 73:611-13 Ap 1 '15

Seattle, Washington

Mishap to Seattle municipal plant. *Il Elec W* 65:902-3 Ap 10 '15

South Carolina

Hydroelectric plant on the Savannah river. *Il diags Elec W* 66:1132-4 N 20 '15

Spain

Hydro-electric undertakings in Spain. plan *Engineer* 120:41-2 J1 9 '15

Sweden

Features of Gullspang hydro-electric power station. *Elec R & W Elec'n* 67:412 S 4 '15
 Swedish government builds hydroelectric plant above the Arctic circle. *Il diags Eng Rec* 72:156-8, 194-8 Ag 7-14 '15

Switzerland

Penstock carries 5,412-ft. head. *diags Eng N* 74:822 O 28 '15

Hydroelectric plants—Continued

Tennessee

Business engineering problem in water power development with the solution for a specific case. W. V. N. Powelson. *Eng & Contr* 43: 222-6 Mr 10 '15; Excerpt (Change of runners permits 100 per cent head increase). *Eng Rec* 71:202 F 13 '15

Texas

Austin's hydroelectric plant has unusual reinforced-concrete wheel casings. *Il diag*s *Eng Rec* 71:750-1 Je 12 '15

Hydroelectric development at Austin, Tex. *Il diag*s *Elec W* 65:1460-2 Je 5 '15

New Austin dam and power plant. F. S. Taylor. *Il Eng & Contr* 43:485-7, 492-5, 535-6 My 26-Je 2, 16 '15; Same cond. *Elec R & W Elec'n* 66:939-45 My 22 '15

Power development at the Austin dam. F. S. Taylor. *Il diag plan Eng N* 73:1124-6 Je 10 '15

United States

Electrical features of the U. S. reclamation service. F. H. Newell. *Am Inst E E Pro* 33: 1583-98 O '14; Summary. *Elec W* 64:753 O 17 '14; Discussion. *Am Inst E E Pro* 34:875-9 Ap '15

Features of engineering in the West. H. F. Stratton. *Il map* (p 142) *Sibley J* 29:146-9 F '15

Merging hydro-electric interests. *Power* 41: 681-2 My 18 '15

Utah

Transmission at 130,000 volts in Utah. *Il plans Elec W* 65:1451-5 Je 5 '15

Vermont

480-ft.-head Vermont water-power; features of 6000-hp hydroelectric station at Chittenden. *Il diag*s *Elec W* 65:1297-9 My 22 '15

Hydro-electric power plants at Chittenden, Vt. T: Fraher. *Il diag*s *map Power* 41:494-9 Ap 13 '15

New Chittenden plant of the Pittsford power co. T: Fraher. *Il diag*s *Eng N* 74:14-17 Jl 1 '15

New power plant has highest head in New England. *Il map Eng Rec* 71:652-3 My 22 '15

Wisconsin

Plant tests of a low-head hydro-electric development. F. Nagler. *Il diag Eng N* 72:1193-8 D 17 '14

Hydroelectric plants, Municipal

Boston municipal water plant derives income from water power. W. B. Conant. *Il Munic Eng* 49:117 S '15

Hydroelectric power

Conditions that will encourage hydroelectric development. J: A. Britton. *Elec W* 64: 1236-8 D 26 '14

Development of water power on public lands. *Eng Rec* 71:76-6 Ja 18 '15

Economic and social effects of hydro-electric power. F. G. Baum. *Power* 43:597-8 O 26 '15

Electric power in Canadian industry. C. H. Mitchell. *map Power* 42:667-8 N 9 '15

Electric power industry. D: B. Rushmore. *Il map Gen Elec R* 18:427-39 Je '15

Electro-metallurgical industries as possible consumers of electric power. D. A. Lyon and R. M. Keeney. *Am Inst Min E Bul* 104:1707-30 Ag '15; Excerpts. *Iron Age* 96:360-2 Ag 12 '15

Hydro-electric power compared with steam; with discussion. R. P. Bolton. *Am Soc Heat & V E* 20:374-91 '14

Hydro-electric power in Ontario. A. Beck. *Il Elec W* 66:1072-3 N 13 '15

Hydro-electric project to be administration measure. *Power* 42:356-7 S 7 '15

New Niagara power project. *Il map Power* 42: 416 S 21 '15

Proposed Missouri-Meramec river hydro-electric power development; committee report. *Assn Eng Soc J* 55:32-6 Jl '15

Relative costs of steam and hydro-electric power. *Power* 41:246 F 16 '15

Running railroads by water power. T: F. Logan. *Il Sci Am* 112:803-4 Je 19 '15

Senate committee told water-power bill would retard development. *Elec W* 65:54-7 Ja 2 '15

Testimony of Mr. Sidney Z. Mitchell on the water-power bill. *Elec W* 65:187-9 Ja 16 '15

Testimony on water-power bill. G. Pinchot; P. M. Lincoln. *Elec W* 65:131 Ja 9 '15

Unusual activity in Canadian power development. *Eng N* 74:466-7 S 2 '15

Uses for power from irrigation dams; abstract. E. K. Scott. *Ind Eng* 14:412-13 O '14

Hydrofluoric acid

Industrial uses of hydrofluoric acid. K. F. Stahl. *J Ind & Eng Chem* 7:56-8 Ja '15; Same. *Sci Am S* 79:140-1 F 27 '15

Hydrogen

Determination of hydrogen in gas mixtures by means of colloidal palladium. G. A. Burrell and G. G. Oberfell. *J Ind & Eng Chem* 6:992-4 D '14

Dissociation of hydrogen into atoms. I. Langmuir. *Am Chem Soc J* 37:417-53 Mr '15

Dissociation of hydrogen into atoms. I. Langmuir and G. M. J. Mackay. *Am Chem Soc J* 36:1708-22 Ag '14

Electrolytic production of oxygen and hydrogen—a typical plant. *Il Elec R & W Elec'n* 66:1170-1 Je 19 '15

Free energy of oxygen, hydrogen, and the oxides of hydrogen. G. N. Lewis and M. Randall. *Am Chem Soc J* 36:1969-93 O '14

Hydrogen and the rare gases. J. Dewar. *Sci Am S* 79:191 Mr 20 '15

Hydrogen, its technical production and uses. A. F. Seeker. *Sci Am S* 79:153 Mr 6 '15

Hydrogen manufacture; abstract. A. Fourniols. *Met & Chem Eng* 13:567 S 1 '15

New method of producing pure compressed hydrogen; abstract. F. Bergius. *diag Am Soc M E J* 37:482-3 Ag '15

Hydrogen chloride

Studies in conductivity; the conductivity of some formates and of hydrogen chloride in (anhydrous) formic acid; cases of apparent agreement of strong electrolytes with the mass law. H. L. Schlesinger and A. W. Martin. *Am Chem Soc J* 36:1614-18 Ag '14

Hydrogen peroxide

Experimental data comparing the delicacy of different tests for hydrogen peroxide in milk. I. T. Darlington. *J Ind & Eng Chem* 7:876 Ag '15

Hydrogen sulphide

Lead acetate test for hydrogen sulphide in gas. R. S. McBride and J. D. Edwards. *diag*s *pls U S Bur Stand Tech Pa* 41:1-46 '14; Abstract. *J Fr Inst* 178:639-42 N '14; Abstract. *Met & Chem Eng* 13:62 Ja '15

Method for the determination of hydrogen sulphide in gas. A. B. Way. *Am Gas Inst Pro* 9:pt 1, 164-7 '14; Same cond. *Am Gas Light J* 101:384 D 7 '14; Discussion. *Am Gas Inst Pro* 9:pt 1, 167-78 '14

Hydrogenation

Hydrogenation of oils and soft fats. *Sci Am S* 80:99 Ag 14 '15

Studies in catalytic hydrogenation; a new method of hydrogenation of volatile substances and the rate of hydrogenation of ethylene. J. B. Rather and E. E. Reid. *Am Chem Soc J* 37:2115-18 S '15

Hydrographic surveying

New hydrographic signal of the U. S. coast and geodetic survey. *diag Eng N* 74:27-8 Jl 1 '15

Submarine for hydrographic work. S. Lake. *Il diag Sci Am* 113:272-3 S 25 '15

See also Sounding

Hydrolysis

Estimation of raffinose by enzymotic hydrolysis. S. S. Hudson and T. S. Harding. *Am Chem Soc J* 37:2193-8 S '15

Hydrolysis of sodium carbonate in solution. F. C. Frary and A. H. Nietz. *Am Chem Soc J* 37:2263-78 O '15

Hydrolysis of sugar solutions under pressure. W. S. Hubbard and W. L. Mitchell. *J Ind & Eng Chem* 7:609-10 Jl '15

Manufacture of ethyl alcohol from wood waste; the hydrolysis of white spruce. F. W. Kressmann. *J Ind & Eng Chem* 7:920-2 N '15

Hydrometallurgical apparatus. See Metallurgical apparatus

Hydrometallurgy

- Anaconda leaching and acid plants. E. P. Mathewson. *II* plans Eng & Min J 99:723-7 Ap 24 '15
- Case for copper hydrometallurgy; inexpensive and efficient treatment of smelter flue dust and carbonate ore. G. C. Westby. *II* Met & Chem Eng 13:295-7 My '15
- Chloridizing blast roasting and leaching. G. A. Keep. *II* diag Eng & Min J 99:265-9, 315-23 F 6-13 '15
- Chloridizing ores at Silver City, Utah. *II* diag Met & Chem Eng 12:757-9 D '14
- Copper hydrometallurgy; process patented by E. A. C. Smith. Met & Chem Eng 13:451 J1 '15
- Copper leaching; discussion. L. D. Ricketts and others. Met & Chem Eng 13:319-24 My '15
- Hydro-electrolytic treatment of copper ores.* R. R. Goodrich. *II* Am Inst Min E Bul 104: 1851-94 Ag '15; Summary. Met & Chem Eng 13:766 O 15 '15
- Hydrometallurgical treatment of Michigan copper tailings. R. D. Leisk. plan Met & Chem Eng 13:233-4 Ap '15
- Leaching a zinc-lime ore with acids. O. C. Ralston and A. E. Gartside. Met & Chem Eng 13:151-5 Mr '15
- Leaching at the Calumet & Hecla. Eng & Min J 99:821 My 8 '15
- Leaching copper with ammoniacal solutions. Met & Chem Eng 13:449-51 J1 '15
- Leaching experiments on the Ajo ores. S. Crossdale. Am Inst Min E Bul 92:1881-1929 Ag '14; Abstract. Met & Chem Eng 13:591-3 S '14; Excerpts. Eng & Min J 98:1098-9, 1139-40; 99:575-6 D 19-26 '14, Mr 27 '15
- Metallurgy of copper in 1914. L. Addicks. Eng & Min J 99:91-2 Ja 9 '15
- New copper metallurgy. H. A. Megraw. *II* diag Eng M 48:679-88 F '15
- Precipitating plant at the Copper Queen mines. C. M. Coats and G. L. Allen. *II* diag plan Eng & Min J 99:17-19 Ja 2 '15
- Problems in copper leaching; discussion. Am Inst Min E Bul 100:711-37 Ap '15; Discussion. 108:2459-60 D '15
- Pulp constants, with tables to facilitate tonnage calculations for pulps of all usual solution and dry slimes specific gravities. G. H. Clevenger, H. W. Young and T. N. Turner. Eng & Min J 98:1079-94 D 19 '14
- Roasting and leaching concentrator slimes tailings. L. Addicks. *II* flow sheet Am Inst Min E Bul 104:1471-84 Ag '15; Same. Met & Chem Eng 13:581-5 S 1 '15; Discussion. Am Inst Min E Bul 108:2460-4 D '15
- Solution control in ferric-chloride leaching of sulphide copper ores. F. N. Flynn and R. H. Hatchett. Met & Chem Eng 13:291 My '15
- Solution of pulp problems by graphic methods. W. J. McCauley. Eng & Min J 100:98-100 J1 '15
- Status of copper hydrometallurgy. Eng & Min J 99:31-2 Ja 2 '15
- Van Arsdale's method of copper-ore treatment. Eng & Min J 100:61-2 J1 10 '15

Hydrometers

- Measurements for the household. *II* U S Bur Stand Circ 55:122-5 '15
- Will Quizz, jr. Power 41:453-4 Mr 30 '15

Hydroplanes

- Effect of beam on the speed of hydroplanes. L. Hope. Engineer 119:336-7 Ap 2 '15
- Latest novelty in speed boats. *II* Sci Am 113: 156 Ag 21 '15

Hydrostatics

- Curves for solving the hydrostatic catenary. H. M. Gibb. Eng N 73:668-70 Ap 8 '15
- Hydrostatic catenary surne on a concrete aqueduct. H. B. Muckleston. *II* diag map Eng N 74:58-63 J1 8 '15
- Reinforced-concrete tank of 100,000-gallon capacity designed by use of diagrams. A. R. James. diag Eng Rec 72:135-6 J1 31 '15
- See also Compressibility; Hydrometers; Specific gravity

Hydroxyazo compounds

- Constitution of the hydroxyazo compounds; the action of unsymmetrical benzoylparatolylhydrazine upon benzoquinone and its homologs. W. McPherson and G. W. Stratton. Am Chem Soc J 37:906-15 Ap '15

Hydroxylamine

- Heat of neutralization of hydroxylamine and tetramethylammonium hydroxide. E. O. Ellingson. Am Chem Soc J 37:699-709 Ap '15
- Three isomeric ethyl secondarybutyl hydroxylamines. L. W. Jones and L. Neuffer. Am Chem Soc J 36:2202-8 O '14

Hydroxytriphenylcarbinol

- Triphenylmethyl; preparation of *p*-hydroxytriphenylcarbinol and attempts to isolate the corresponding triarylmethyl. M. Gomberg and R. L. Jickling. Am Chem Soc J 37:2575-91 N '15

Hydroxyurethanes

- New hydroxyurethanes and chromoisomerie silver salts of their acyl derivatives. L. W. Jones and R. Oesper. Am Chem Soc J 36: 2208-23 O '14

Hygiene, Industrial

- See also Factory restaurants; Factory sanitation; Foundry sanitation; Physical examinations

Hygiene, Military. See Military hygiene

Hydrograph

- Hydrograph. H: Briggs. Colliery 35:374-5 F '15

Hygrometers. See Psychrometers

Hygroscope

- Measurements for the household. *II* U S Bur Stand Circ 55:111-14 '15

Hyphen. See Compound words

Hypochlorites

- Automatic device controls hypochlorite application. E. E. Ludwick. diag Eng Rec 72: 103-4 J1 24 '15
- Collapsible hypo plant packed in a trunk. *II* diag Eng Rec 71:373 Mr 20 '15
- Disinfecting large public water supplies. T. Horton. Metal Work 84:40-1 J1 9 '15
- Hypochlorite treatment at Ludington. G. W. Clark. plan Munic J 38:394 Mr 25 '15
- Kinks in the control of hypochlorite at Denver. W. W. De Berard. *II* Am Water Works Assn J 2:442-5 Je '15; Same. Eng Rec 71:393-4 Mr 27 '15
- "New" surgical antiseptic; hypochlorites. Sci Am 113:164 Ag 21 '15
- Relative efficiency of liquid chlorine and hypochlorite of lime. F. E. Hale. Eng & Contr 43:173-4 F 24 '15
- Variations in practice disclosed by water sterilization statistics; status of hypochlorite and liquid chlorine methods of treatment. F. F. Longley. Eng Rec 71:291-2 Mr 6 '15

Hypophysis. See Pituitary gland

Hysteresis

- Determination of hysteresis loops. A. Ytterberg. diag Elec W 65:212-13 Ja 23 '15
- Effect of displaced magnetic pulsations on the hysteresis loss of sheet steel. L. W. Chubb and T. Spooner. *II* diag Am Inst E E Pro 34:2321-42 O '15
- Form factor and its significance. F. Bedell, R. Bown and H. A. Pidgeon. Am Inst E E Pro 34:1051-8 Je '15; Abstract. Elec W 66:7 J1 3 '15
- Hysteresis tests for rubber. E. L. Davies. J Ind & Eng Chem 6:985-6 D '14
- Plotting hysteresis curves. A. Ytterberg. diag Elec W 66:1043 N 6 '15
- Recent experiments on elastic hysteresis: abstract. R. Grammel. Am Soc M E J 37:115-16 F '15
- Structure and hysteresis loss in medium-carbon steel. F. C. Langenberg and R. G. Webber. *II* Am Inst Min E Bul 98:291-300 F '15; Same. Iron Age 95:506-8 Mr 4 '15; Same cond. Iron Tr R 57:576-7 S 23 '15
- Unsymmetrical hysteresis loop. J: D. Ball. Am Inst E E Pro 34:2275-97 O '15
- See also Permeameter

I**Ice**

- Aneroid calorimeter and specific heat of ice. Iron Tr R 57:228 J1 29 '15

Ice—Continued

Specific heat and heat of fusion of ice. H. C. Dickinson and N. S. Osborne. *diags* U S Bur Stand Bul 12:49-81 O 28 '15; Abstracts. J Fr Inst 179:489-91 Ap '15; Power 41:565 Ap 27 '15; Am Soc M E J 37:294-5 My '15

Manufacture

Artificial ice plants operating in conjunction with small central stations. H. Hechheimer. Elec R & W Elec'n 66:1168-9 D 19 '14

Ice making. Elec R & W Elec'n 67:57-8 J1 10 '15

Ice-making as a by-product of central stations. H. Cochran. *diags* Am Soc M E J 37:369-74 J1 '15

Initial and operating costs of large ice plants. R. P. Kehoe. Power 42:545-6 O 19 '15

Making ice with purchased electric power. C. A. Tripp. *il* Munic Eng 43:294-6 My '15

Motor drive adopted for compressors and other equipment in Reading (Pa.) ice plant. A. L. Hart. *il* Elec W 66:1147-8 N 20 '15

Performance of refrigeration plant at Lübeck, Germany. R. Stetefeld. Power 41:312-14 F 9 '15

Year's records from a raw-water ice plant. Elec W 66:470 Ag 28 '15

See also Refrigeration and refrigerating machinery

Ice breaking vessels

Ice-breaking train ferry steamer. *il* *diag* plan (supp) Engineer 120:49-50 J1 16 '15; Abstract. Int Marine Eng 20:515 N '15

Ice cream

Determination of fat in ice cream by the Babcock method. C. A. A. Utt. J Ind & Eng Chem 7:773 S '15

Manufacture

Electricity in ice-cream manufacture. *il* Elec R & W Elec'n 66:413-15; 67:55-7 Mr 6, J1 10 '15

Ice harvesting

Harvesting ice. W. H. Mallia. *il* Sci Am S 80:132-3 Ag 28 '15

Motor-driven ice saw. *il* Eng N 73:939 My 13 '15

Ice houses

Data on wood frame and reinforced concrete ice storage houses. Eng & Contr 44:37-9 J1 14 '15

Design of railroad ice storage houses. Eng & Contr 42:568-5 D 16 '14; Abstract. Ry Age 57:759-60 O 23 '14

Fireproof ice-house at Lake Hopatcong. *diags* Eng Rec 71:50-1 Ja 9 '15

40,000-ton railroad icehouse electrically operated. plans Eng Rec 72:132 J1 31 '15

Ice making. See Ice—Manufacture**Ice on rivers, lakes, etc.**

Ice fighting is systematized at Holtwood hydroelectric plant. F. A. Allner. *il* *diag* map Eng Rec 72:66-8 J1 17 '15

Severe frazil ice attack at Holtwood plant does not disturb service. F. A. Allner. *il* *diag* Eng Rec 73:113-15 J1 24 '15

Ice storage. See Ice houses**Icebergs**

Icebergs and their detection. Sci Am S 80:110-11 Ag 14 '15

Iceland**Industries and resources**

Development of Iceland's resources. F. B. Aru-grimsson. Sci Am 113:291 O 2 '15

Idaho

See also Mines and mineral resources—Idaho

Idaho power and light company

Granted a certificate of convenience and necessity. Elec R & W Elec'n 66:249-50 F 6 '15

Ideals

Practical life ideals. V. Karapetoff. Sibley J 29:191-4 Mr '15

Identification

Passing of the Bertillon system of identification. R. B. Fosdick. Sci Am S 80:330-1 N 20 '15

Igneous rocks. See Rocks, Igneous**Ignition of gas. See Gas—Ignition****Illinois**

See also Roads—Illinois

Highway department

Highway work in Illinois. *il* Good Roads n s 8:205-10 D 5 '14

Industries and resources

Illinois oil in 1914. R. S. Blatchley. Eng & Min J 99:136-7 Ja 16 '15

Public utilities commission

Work of the Illinois utilities commission; with discussion. R. M. Feustel. W Soc E J 19:965-78 D '14

Illinois Central railroad

Grade reduction on the Kentucky division. F. G. Water, jr. *il* Ry R 67:389-93 S 25 '15

Sixty-fifth annual report. map Ry Age 59:721-2, 784-6 O 22 '15

Track depression at Mattoon. *il* *diag* plan Eng N 74:110-12 J1 15 '15

Illinois electric railways association

Economics in power consumption, feeder-tap protection and care of commutators, and one-man cars discussed. Elec Ry J 45:626-8 Mr 27 '15

Meeting. Chicago, Oct. 29. Elec Ry J 46:952-3 N 6 '15

Presentation and discussion of committee reports. Elec Ry J 45:173 Ja 23 '15

Illinois mining institute

2d annual session. Colliery 35:325-6 Ja '15

Illinois press association

Golden jubilee. J. T. Elliott. Inland Ptr 55:382-4 Je '15

Illinois state association of master plumbers

23d annual convention. Springfield, Ill. Jan. 27-28, 1915. Metal Work 83:232-4 F 5 '15

23d annual convention. Springfield, Jan. 27-28. Dom Eng 70:179-82 F 6 '15

Illinois state association of sheet metal contractors

Convention. Peoria, Ill., May 12-13. Metal Work 83:740-3 My 21 '15

Illinois. University

Acoustics of auditoriums; investigation of the acoustical properties of the armory at the University of Illinois. F. R. Watson. *biblog* *il* *il* U Eng Exp Sta Bul 73:1-32 '14; Same. Sci Am S 73:358-9, 380-2 D 5-12 '14

Acoustics of auditoriums; investigation of the acoustical properties of the armory at the University of Illinois. F. R. Watson. *il* Brickb 24:267-8 O '15

End framing for armory at University of Illinois and some general features of this structure. *il* *diags* Eng & Contr 43:141-3 F 17 '15

Engineering experiment station of the University of Illinois. E. B. Paine. Am Inst E E Pro 34:2421-7 O '15

Training in foundry work that is worth while. R. E. Kennedy and J. H. Hogue. *il* Foundry 43:405-11 O '15; Same. Iron Tr R 57:617-23 S 30 '15

Illium

Acid-resisting alloy to replace platinum in the construction of a bomb calorimeter. S. W. Farr. *il* Am Chem Soc J 37:2515-22 N '15

Developing an acid-resisting alloy. S. W. Farr. *il* Iron Tr R 57:991-4 N 13 '15; Same. Metal Ind n s 12:457-8 N '15; Abstract. Am Soc M E J 37:656-7 N '15; Abstract. Met & Chem Eng 13:973 D 15 '15

Illuminating engineering society

8th annual convention. Cleveland, Ohio, Sept. 21-24, 1914. *il* Illum Engr 7:556-7 D '14

Financing engineering societies. C. H. Sharp; W. D. Weaver. Elec R & W Elec'n 66:918-20 My 15 '15

9th annual convention in the United States. L. Gaster. Illum Engr 8:443-4 N '15

9th annual convention; program. Elec W 66:174 J1 24 '15

9th annual convention. Washington, D. C. Elec W 66:879-80 S 25 '15

9th annual convention. Washington, D. C., Sept. 20-22. Elec R & W Elec'n 67:619-24 O 2 '15

- Illuminating engineering society—Continued**
 8th annual meeting, Washington, D. C. Sept. 20. Elec R & W Elec'n 67:574-7 S 25 '15
 Progress of the past year. Illum Engr 8:1-4 Ja '15
 Review of the Washington convention, Sept. 20-23. J. R. Cravath. Elec W 66:738-9 O 2 '15
- Illumination.** See Lighting
- Illuminometer.** See Photometry
- Imhoff tanks**
 Additions to the Baltimore sewage-works. 11 diag Eng N 74:278-9 Ag 5 '15
 Albany sewage-disposal works. J. H. Gregory. plans Eng N 74:692-5 O 7 '15
 Constructing the Fitchburg sewage-works. F. A. Marston. 11 diag Eng N 74:4-6 J1 1 '15
 Design feature of new sewerage system and sewage disposal works for Cleburne, Texas. R. E. McDonnell. diag plans Eng & Contr 44:72-5 J1 28 '15
 Design of two residential sewage treatment plants, including settling tanks of Imhoff type. S. A. Greeley. 11 diag plans Eng & Contr 42:565-7 D 16 '14
 Factors in design of Imhoff tanks at Fitchburg, Mass. 11 Eng Rec 71:332-3 Mr 13 '15
 Imhoff sewage tank at Manchester, England. O. J. Wilkinson. diag Eng N 73:770-1 Ap 22 '15
 Imhoff sewage tank, Waupun, Wisconsin. diag Eng N 73:280 F 11 '15
 Imhoff tanks and sprinklers for sewage of Brighton district, Rochester, New York. diag plan Eng Rec 71:879-82 My 29 '15
 Multiple flow chambers in Imhoff tanks. J. H. Gregory. diag Eng Rec 71:433-4 Ap 8 '15
 Multiple flowing-through chambers in Imhoff tanks. diag Eng Rec 71:72-3 Ja 16 '15
 Operating records of Atlanta sewage treatment plant show adequate degree of purification. C. C. Hommon. 11 Eng Rec 72:4-7 J1 8 '15
 Remodeling of septic tanks into Imhoff tanks eliminates odors from land irrigation. 11 diag plan Eng Rec 71:747-8 Je 12 '15
- Iminoacetoneitrile**
 New synthesis of iminoacetoneitrile and its conversion to hydrazinodiacetic acid. J. R. Bailey and D. F. Snyder. Am Chem Soc J 37:935-42 Ap '15
- Immigrants**
 Measuring human intelligence: standardized tests used by the Public health service. H. A. Knox. 11 Sci Am 112:52-3+ Ja 9 '15
 See also English language (for foreigners)
- Immigration**
 War and immigration; an unintentional experiment in restriction. Sci Am 113:244 S 18 '15
- Imposture**
 See also Forgery; Fraud
- Incandescent electric lamps.** See Electric lamps, Incandescent
- Incandescent lighting.** See Electric lighting, Incandescent; Gas lighting, Incandescent; Gas mantles
- Incinerators.** See Refuse incinerators
- Inclined elevators.** See Elevators, Inclined
- Income**
 See also Wages
- Income tax**
 Extending the inquisition. J Account 19:50-2 Ja '15
 Income tax amendment. J Account 19:292-4; 20:217-19 Ap, S '15
 Income tax department. See monthly numbers of Journal of accountancy
 Return of annual net income by corporations. W. F. Weiss. J Account 19:260-7 Ap '15
- Incubators, Bacteriological.** See Bacteriological incubator
- Index plate**
 Making an index plate. G. H. Gardner. Mach 21:669 Ap '15
- Indexing**
 Card index and what it means. J. J. Reynolds. Elec Ry J 46:815-18 O 16 '15
 Engineering libraries. L. B. Krause. Ry R 56:356 Mr 13 '15
- Filing and indexing of office computations.** F. H. Jones. Eng Rec 72:128-9 J1 31 '15
- Growth of engineering libraries and need of indexes.** Ry R 56:189-91 F 6 '15
- Growth of engineering libraries and the need of indexes.** H. W. Wilson. Ry R 56:430 Mr 27 '15
- Indexing technical literature.** W. G. Lohmeyer. 11 Mach 21:901-3 J1 '15
 See also Files and filing (documents)
- Indexing (machine work)**
 Compound indexing on the milling machine. J. A. Hinckley. Mach 21:1005 Ag '15
 Problem in slotting and indexing. D. A. Hampson. 11 diag Mach 22:135-6 O '15
- Indexing fixtures**
 Turret indexing mechanisms. A. A. Dowd. 11 diag Mach 21:797-801 Je '15
- India**
 Technical training in India. Engineer 120:429-30 N 5 '15
- Bridges**
 Design and construction of the Lower Ganges bridge in India. 11 diag map Eng & Contr 42:478-81 N 18 '14
 Hardinge bridge over the lower Ganges. F. C. Coleman. 11 diag Eng N 73:1160-4 Je 17 '15
- Commerce**
 British India. H. D. Baker and others. U S Sp Cons Rep 72:1-573 '15
 Hour of America's trade opportunity in India. T'ishi Bhutia Kywagh Hla'. Am Ind 16:25-7 Ag '15
 Marketing cotton goods in India. Textile World 48:374-6 Ja '15
- Economic conditions**
 British India. H. D. Baker and others. 11 U S Sp Cons Rep 72:1-572 '15
- Industries and resources**
 Ancient sedimentary iron ores of British India. C. M. Weld. maps Econ Geol 10:435-52 J1 '15
- Railroads**
 See Railroads—India
- Indian lands**
 United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94: pt 2, 952-1037 '15
- Indiana**
 Indiana desert. H. Maxwell. 11 Sci Am S 80: 248-50 O 16 '15
- Indiana electric light association**
 7th annual convention, Terre Haute, September 8-10. Elec R & W Elec'n 67:534-6 S 18 '15
 7th annual convention, Terre Haute, Sept. 8-10. Elec W 66:566-7, 626-7 S 11-13 '15
- Indiana engineering society**
 Annual meeting, Indianapolis, Jan. 21, 23, 1915. Eng N 73:182 Ja 28 '15
- Indiana sanitary and water supply association**
 8th annual meeting, Indianapolis, Feb. 23-24, 1915. Eng N 73:455 Mr 4 '15
- Indiana state association of master plumbers**
 19th annual convention, La Porte, March 8-10. Dom Eng 70:344-7 Mr 13 '15
 Three day meeting opened at La Porte. Metal Work 83:440-2 Mr 19 '15
- Indianapolis, Indiana**
Floods
 Flood-protection work on Fall creek at Indianapolis, Ind. L. F. Wertz. 11 diag map Eng N 72:1120-3 D 3 '14
 High levees will protect Indianapolis from floods. 11 map Eng Rec 72:560-2 N 6 '15
 Indianapolis flood protection. 11 map Eng N 74: 961-5 N 18 '15
- Sewerage**
 Improvement of Pogue's Run. 11 plans Munic Eng 48:236-9 Ap '15
 Indianapolis builds million dollar storm-water drain under railroad yards. 11 Eng Rec 71:560-1 My 1 '15
- Water supply**
 Indianapolis pumping station designed for continuous service. Eng Rec 71:208 F 13 '15

Indians

Languages

Visible speech; eye seeing and the rule measuring the difference between sounds. A. L. Kroeber. *Il diag* Sci Am 112:471 My 22 '15

Indians of North America

Social life and customs

Indian and nature; the basis of his tribal organization and rites. A. C. Fletcher. *Sci Am S* 80:314-15 N 13 '15

Indians of South America

Roosevelt-Rondon scientific expedition. L. E. Miller. *Il Sci Am S* 79:268-70 Ap 24 '15

Indicator diagrams

Comment on diagrams. H. H. Sawers; V. Bonn. *Power* 40:815 D 8 '14

Indicator diagrams from blowing cylinder. C. E. Sampson. *diag Power* 42:551 O 13 '15

Notes on indicator diagrams. A. R. Nottingham. *Power* 41:309-10 Mr 2 '15

Indicators

Adjustable stop on O'Kill indicator. *Il diag Automobile* 33:375 Ag 26 '15

Electric water level indicator with distant reading. G. Schmidt. *diag plan Am Soc M E J* 37:45-6 Ja '15

Indicator reducing motion. H. G. Boutell. *Il Ry Age (Mech ed)* 39:563 N '15

Influence of indicator connecting pipes. T. W. Morley. *diag Power* 41:622-3 My 4 '15

Lamp slip indicator. F. Bedell. *Elec R & W Elec'n* 85:1224 D 26 '14

Multiple-unit boiler control. E. F. Fisher. *diags Power* 42:378-80 S 14 '15

Power-factor indicator. J. A. Randolph. *diags Power* 40:836-8 D 15 '14

Use of optical indicators for checking defects in functioning of motors. *diags Automobile* 33:976-9, 1018-19 N 25-D 2 '15

Indicators and test papers

Indicator in pyroigneous acid. J. M. Johlin. *J Ind & Eng Chem* 7:596 J1 '15

Natural indicators. H. W. Brubaker. *Am Chem Soc J* 36:1925-8 S '14

Radiometric measurements of the ionization constants of indicators. E. J. Shaeffer, M. G. Paulus, and H. C. Jones. *diags Am Chem Soc J* 37:776-807 Ap '15

Radiometric measurements of the ionization constants of indicators. M. G. Paulus, J. F. Hutchinson and H. C. Jones. *Am Chem Soc J* 37:1694-1704 J1 '15

Indigo

Cultivating Chinese indigo. G. E. Anderson. *Textile World* 49:381 Je '15

Indigotin content of some Japanese indigos. S. Sato. *J Ind & Eng Chem* 7:675-6 Ag '15

Indigo, Artificial

Artificial indigo made in the United States. *Met & Chem Eng* 13:773-4 N 1 '15

Development of artificial indigo. *Textile World* 48:511 F '15

Indo-China

Commerce

China and Indo-China markets for American lumber. F. H. Smith. *U S Bur For & Dom Com* 104:1-39 '15

Inductance

Effective resistance and inductance of iron and bimetallic wires. J. M. Miller. *diags U S Bur Stand Bul* 12:307-67 N 8 '15

Induction coils

Large induction coil of novel design. *Il Sci Am* 113:250-1 S 18 '15

Spark-plug ignition systems. A. H. Israel. *diags Power* 41:268-60 F 23 '15

See also Electric transformers; Electromagnets

Inductive interference. See Electric lines—Inductive interference

Industrial accidents. See Accidents, Industrial

Industrial arbitration. See Arbitration, Industrial

Industrial arts

See also Architecture; Bookbinding; Brewing; Building; Business; Canning and preserving; Chemical engineering; Chemistry, Tech-

nical; Commerce; Dyes and dyeing; Electric engineering; Engineering; Engraving; Factories; Foundry practice; Inventions; Machine shop practice; Machinery; Metallurgy; Painting, Industrial; Patents; Photography; Plumbing; Pottery; Printing; Tanning

Industrial betterment

Co-operative spirit and industrial peace. F. B. Gilbreth and L. M. Gilbreth. *Iron Age* 96:528-30 S 2 '15

Enlarging the worth of the worker and the perspective of the employer. J. P. Channing. *Il Am Inst Min E Bul* 99:539-38 Mr '15; Excerpt (Student engineers teach workmen). *Iron Age* 95:554-5 Mr 11 '15; Discussion. *Am Inst Min E Bul* 101:1086-9 My '15

How to keep men in your employ. W. A. Grieves. *Iron Tr R* 57:488-9+ S 9 '15

Human factor in production. A. A. Dowd. *Iron Tr R* 55:1186+ D 24 '14

Labor problems in scientific management. *Iron Age* 94:1369-72 D 10 '14

More about the human factor. D. M. Myers. *Eng M* 49:801-3 S '15

New certificate of character for manufacturers. R. G. Valentine. *Ind Eng* 15:40-3 F '15

Teaching human engineering. F. H. Rindge, jr. *Eng N* 73:577-8 Mr 25 '15

See also Employees; Factory sanitation; Garden cities; Housing problem; Industrial education; Profit sharing; Safety devices and measures; Scientific management; Welfare work in industry

Industrial buildings

Economical industrial buildings. North East, Pa. *Il Iron Tr R* 57:484 S 9 '15

Hallenbeck-Hungerford building. *Il plan Arch & Bldg* 47:69-72 F '15

Some industrial buildings. G. C. Nimmons. *Il plans Arch Rec* 38:228-45 Ag '15

See also Department stores; Factories; Foundries

Industrial counselor and the industrial audit.

R. G. Valentine. *Iron Age* 94:1369-70 D 10 '14

Industrial education

Boston symposium on employment and education. *Am Soc M E J* 37:277-81 My '15

Educational scrap heap and the blind alley job. L. W. Dooley. *Sci Am S* 79:170-1 Mr 13 '15; Excerpts. *Il Sci Am* 113:247 Mr 13 '15

Industrial education again. E. H. Fish. *Power* 41:207-8 F 9 '15

Master mechanics to teach in public schools. W. Wirt. *Metal Work* 33:341 Je 11 '15

Practicing engineers and industrial education. F. G. Bonser. *Eng N* 72:1133-4 D 8 '14

Trade school idea at Gary, Ind. *Il Bldg Age* 37:25-8 S '15

Trade training and world commerce. H. E. Miles. *Am Ind* 15:19-20 F '15

Training for the industrial side of engineering. A. P. M. Fleming. *Inst E E J* 53:566-73; Discussion. 53:574-80 Ap 15 '15

Training of shop teachers for industrial schools. H. E. Speece. *Mach* 22:47-8 S '15

See also Apprentices; Corporation schools; Engineering education; Schools and shops; Cooperation of; Technical education; Trade schools; Vocational education; also Berea college; Hampton Institute

Exhibitions

Industrial education exhibition. *Il Am Ind* 15:42-4 Je '15

Industrial electric heating association

Industrial electric heating association formed at Toledo on May 1. *Elec R & W Elec'n* 66:865 My 8 '15

Industrial fellowships

Unique system of service to industry; Mellon Institute of Industrial Research. J. J. O'Connor. *Il Am Ind* 15:27-8 O '15

Industrial locomotives. See Locomotives, Industrial

Industrial plants

Heating and ventilating industrial plants. E. L. Hogan. *Metal Work* 33:263-5 F 12 '15

Same. *Dom Eng* 70:239-41 F 20 '15

See also Electric plants; Factories; Foundries; Iron works; Machine shops; Metallurgical plants; Steel works

Industrial railroads. See Railroads, Industrial.
Industrial relations, Commission on. See United States—Commission on industrial relations

Industrial relations committee
 Railroad brotherhoods busy. W. L. Stoddard. Ry Age 59:1016 N 28 '15

Industrial research

Administration of industrial research laboratories. Met & Chem Eng 13:922 D 1 '15
 Co-operation between university and industry. Met & Chem Eng 13:885-7 D 1 '15
 Description of the research laboratory of the General electric company. L. A. Hawkins. J Gen Elec R 18:416-27 Je '15

Doing without Europe. Sci Am 112:176, 196, 223 F 20-Mr 6 '15
 Education for research. W. H. Walker. J Ind & Eng Chem 7:2-4 Ja '15
 Engineering experiment station of the University of Illinois. E. B. Paine. Am Inst E E Pro 34:2421-7 O '15

England's tardy recognition of applied science. W. R. Whitney. J Ind & Eng Chem 7:819-22 O '15
 National council of science. Engineer 120:109 JI 30 '15

Object and work of the Mellon Institute. R. F. Bacon. J Ind & Eng Chem 7:343-7 Ap '15
 Relation of research to the progress of manufacturing industries. W. R. Whitney. Gen Elec R 18:868-72 N 3 '15; Same. Eng & Contr 48:537-9 Je 18 '15

Research. W. R. Whitney. Gen Elec R 18:1012-14 N '15
 Research and industry. Sci Am 112:616+ Je 19 '15

Research and progress in American manufacture. R. F. Bacon. Sci Am S 80:334-6 N 20 '15
 Research in chemical industry. C. F. Burgess. Met & Chem Eng 13:921 D 1 '15

Research work at the National cash register company. H. G. Dorsey. J Sibley J 29:115-21 Ja '15

Research work at the University of Pittsburgh. S. R. Scholes. Foundry 43:237 Je '15
 200-mile artificial transmission line. C. E. Magnusson, J. Gooderham and R. Rader. JI diag Elec W 66:1545-9 Je 12 '15

War, industrial research, and the American manufacturer. Sci Am 111:518 D 26 '14

See also Chemical research; Chemistry, Technical; Laboratories; Scientific research

Industrial service movement
 Enlarging the worth of the worker and the perspective of the employer. J. P. Channing. JI Am Inst Min E Bul 98:529-38 Mr '15; Excerpt (Student engineers teach workmen). Iron Age 95:554-5 Mr 11 '15; Discussion. Am Inst Min E Bul 101:1095-9 My '15

Teaching human engineering. F. H. Rindge, Jr. Eng N 73:577-8 Mr 25 '15

Industrial towns. See Model towns

Industry
 How to create industrial leaders; chapter from "Industrial leadership." H. L. Gantt. Eng M 50:428-37 D '15

Individual and corporate development of industry. C. P. Steinmetz. Gen Elec R 18:813-16 Ag '15

Industrial energy as a military weapon. J. R. Finlay. Met & Chem Eng 13:547-50 S 1 '15; Abstract. Eng M 50:96-7 O '15

Industrial leadership. H. L. Gantt. Iron Age 95:198-7 Ja 21 '15; Same cond. Metal Work 84:472 O 8 '15

See also Efficiency, Industrial; Government regulation of industry; Labor and laboring classes; Manufactures; also subdivision Industries and resources under names of countries

Infection
 Prevention of infection. T. Darlington. Iron Tr R 56:770 Ap 15 '15

Infectious diseases
 See Typhoid fever; Typhus fever; Yellow fever

Inflammable liquids
 Storage and handling of gasoline. Sci Am 112:356 Ap 17 '15

See also Gasoline; Petroleum

Inflammable mixtures

Decomposition of ammonia and the chances of explosions. F. L. Fairbanks. Power 42:715-17 N 23 '15

Inflammability of mixtures of gasoline vapor and air. G. A. Burrell and H. T. Boyd. diag U S Bur Mines Tech Pa 115:1-16 '15; Same cond. J Ind & Eng Chem 7:414-17 My '15; Summary. Met & Chem Eng 13:802 N 1 '15

Influence of temperature and pressure on the explosibility of methane-air mixtures. G. A. Burrell and I. W. Robertson. diag J Ind & Eng Chem 7:417-19 My '15

Infra-red rays

Air transparency for infra-red rays; application of these rays to telephotography. G. Michaud and J. F. Tristan. JI Sci Am 111:521 D 26 '14

Controlling infra-red emission. W. W. Coblenz. Elec W 66:1155-6 N 20 '15
 Glasses for protecting the eyes from infra-red rays. W. W. Coblenz. J Fr Inst 179:579-80 My '15

Inglewood, California

Politics and government
 Experience at Inglewood, with the city manager form of government. P. H. Kressley. Eng & Contr 48:465-6 N 11 '14

Initial letters
 Proper use of initials. J. L. Frazier. Inland Ptr 55:499-502 JI '15

Injectors
 Boiler-compound injector made up of pipe fittings. T. W. Reynolds. plan Elec W 66:813 O 9 '15

Exhaust injectors. R. W. Rogers. diag Ry Age (Mech ed) 89:514 O '15

Injuries. See Accidents, Industrial; First aid in illness and injury; Personal injuries; Workmen's compensation

Ink
 Composition, properties, and testing of printing inks. bibliog U S Bur Stand Circ 53:1-35 '15

Diffusing media; papers and inks. Illum Eng Soc 10:379-87 no 5 '15
 Printing inks. J Fr Inst 179:215-16 F '15

Structure of a simple red ink. Inland Ptr 56:117 O '15

Inosite
 Inosite and pinite and some of their derivatives. E. G. Griffin and J. M. Nelson. Am Chem Soc J 37:1552-71 Je '15

Insanity
 Mental tests of dementia. B. Hart and C. Spearman. Sci Am S 80:206-3 S 25 '15
 Psychanalytic movement: its services in the prevention of insanity. J. J. Putnam. Sci Am S 78:391, 402 D 19-26 '14

Inscriptions
 How we got our alphabet; the alphabetic discoveries. W. Rice. Inland Ptr 55:531-2 JI '15

Inscriptions, Cuneiform
 Curiosities of bygone ages: relics from New Mexico and from Bible lands. JI Sci Am 112:87+ Ja 28 '15

See also Cuneiform writing

Insecticides
 Arsenates of lead. H. V. Tartar and R. H. Robinson. Am Chem Soc J 36:1843-53 S '14
 Valuation of commercial arsenate of lead. R. H. Robinson and H. V. Tartar. J Ind & Eng Chem 7:499-502 Je '15

Insectivorous plants
 Are plants cruel? S. L. Bastin. JI Sci Am 112:632-3 Je 26 '15

Insects
 Ears and sound-producing mechanisms of insects. H. Bastin. JI Sci Am 111:537 D 26 '14
 Insects' nests. JI Sci Am S 80:212-13 O 2 '15

Sense of smell in insects. Sci Am S 79:80 Ja 30 '15
 Verdict of the insects as to time of death. D. Waterson. Sci Am 113:11 JI 3 '15

See also Borers (animals); Flies; Lac insect; Mosquitoes

Insects, Injurious and beneficial
 Bird enemies of forest insects. W. L. McAtee. JI Am For 21:681-91 Je '15

- Insects, injurious and beneficial—Continued**
 Brookline protects birds. C: B. Floyd. *Il Am* For 21:792-6 J1 '15
 Protection against insect pests. *Sci Am S* 80: 130 Ag 28 '15
- Inspection**
 Can we improve the inspection system? D. R. Stevens. *Il Horseless Age* 36:65-8, 101-4 J1 21-28 '15
 How the product of the foundry is inspected. E: Godfrey. *Foundry* 43:222-4 Je '15; Same cond. *Iron Age* 95:898-9 Ap 22 '15
 Inspecting goods after they are received; the buyer's rights and liabilities. E. J. Buckley. *Elec R & W Elec'n* 67:418 S 4 '15; Same (Right of buyer to reject goods) *Metal Work* 84:355 S 10 '15
 Inspection system for machine shops. W: B. Wessels. *Mach* 21:451-3 F '15
 Operating a foundry on a scientific basis. F: A. Parkhurst. *Il Foundry* 43:107-10. Mr '15
 Relation of the inspection department to the management. F. B. Corey. *Ind Eng* 15:17-18 Ja '15; Same. *Iron Age* 95:566-7 Mr 11 '15
See also Boiler inspection; Bridge inspection; Car inspection; Electric inspection; Fire inspection; Locomotives—inspection; Mine inspection; Waterworks—inspection
- Institute of heating and ventilating engineers**
 Summer meeting, Learnington, June 22. *Heat & Ven* 12:47-8 Ag '15
- Institute of metals**
 Annual general meeting, London, March 18-19. *Engineer* 119:309-10 Mr 26 '15
 Annual meeting, London, March 18-19. *Foundry* 43:193-4 My '15
 Autumn meeting, Sept. 17. *Engineer* 120:298-9 S 24 '15
- Institute of metals, American.** *See* American institute of metals
- Institute of paving brick manufacturers**
 Brickmakers organize to improve their art. *Munic Eng* 49:119-20 S '15
 Organization. *Good Roads n s* 10:159 S 4 '15
- Institution of civil engineers**
 Presidential address. A. Ross. *Engineer* 120: 480-1 N 5 '15
- Institution of electrical engineers**
 Inaugural address of president. J: Snell. *Inst E E J* 53:1-13 D 1 '14
 Report of the council for presentation at the annual general meeting of 27 May, 1915. *Inst E E J* 53:722-35 My 15 '15
- Institution of mechanical engineers**
 Annual general meeting. *Engineer* 119:197-8 F 26 '15
 Manchester meeting, 1915. *Engineer* 120:417 O 29 '15
- Institution of mining engineers**
 General meeting in London, June 10. *Engineer* 119:610-11 Ja 18 '15
- Institution of water engineers**
 Winter meeting. *Engineer* 118:588 D 18 '14
- Instruments.** *See* Astronomical instruments; Drawing instruments; Electric instruments; Measuring instruments; Surgical instruments; Surveying instruments
- Insulating tape**
 Comments on insulating tape. G: E. Austin. *Elec Ry J* 45:888 My 8 '15
- Insulation**
 Apparatus for testing approximate breaking strength of pin insulators. *diag Elec W* 64: 1114 D 5 '14
 Automatic section insulators for mine trolley wires. *plan Elec W* 65:1207 My 8 '15; *Elec Ry J* 45:852 My 1 '15
 Combination cable insulator and splicing sleeve. *Il Elec Ry J* 46:114-15 J1 17 '15
 Comparative insulation requirements in the United States and European countries. *Elec R & W Elec'n* 65:1133 D 12 '14
 Dielectric properties of different insulating materials; abstract. K. W. Wagner. *diag Elec W* 65:1044-5 Ap 24 '15
 Discussion on transmission lines. (See Proceedings for June and July, 1915) *Am Inst E E Pro* 34:3117-26 D '15
 Distributing potential over a string of insulators. J. L. Brenneman and H. M. Crothers. *diag Elec W* 64:1095-9 D 5 '14
- Economy in the operation of 55,000-volt insulators. M. T. Crawford. *Il Am Inst E E Pro* 33:1159-64 Ag '14; Discussion. 34:155-60 Ja '15
 Effect of altitude on the spark-over voltages of bushings, leads and insulators. F. W. Peek, jr. *Il diag Am Inst E E Pro* 33:1377-86 D '14; Same. *Gen Elec R* 18:137-42 F '15; Discussion. *Am Inst E E Pro* 34:1328-49 Je '15
 Effect of insulating resistance on armored cables; abstract. A. Gavand. *Elec W* 65:1634 Je 26 '15
 Effect of transient voltages on dielectrics. F. W. Peek, jr. *Il Am Inst E E Pro* 34:1695-1747 Ag '15
 Electric perforation strength of liquids, semi-liquids and solid insulation as affected by pressure; abstract. F. Kock. *Elec W* 65:919 Ap 10 '15
 Electrical characteristics of solid insulations. F. W. Peek, jr. *Gen Elec R* 18:1050-7 N '15
 Electrical porcelain. I. Testing with a high-frequency oscillator. II. The problematical points of manufacture. III. Experiences and experimental investigations. E. E. F. Creighton. *Il Am Inst E E Pro* 34:753-841 My '15; Abstract and discussion. *Elec R & W Elec'n* 66:295-6 F 27 '15; *Elec W* 65:523 F 27 '15; Discussion. *Am Inst E E Pro* 34: 2622-45 N '15
 Experimental data concerning the safe operating temperature for mica armature-coil insulation. F. D. Newbury. *diag Am Inst E E Pro* 34:2555-73 O '15; Abstract. *Elec W* 66: 1205-8 N 27 '15
 Four years' operating experience on a high-tension transmission line. A. Bang. *diag pla Am Inst E E Pro* 34:1425-45 J1 '15; Abstract. *Elec W* 65:10-11 J1 3 '15
 High frequency; breakdown values of oiled pressboard. F. W. Peek, jr. *Gen Elec R* 18: 934 S '15
 High-frequency oscillator for porcelain-insulator testing. *Il diag Elec R & W Elec'n* 66: 880-1 My 8 '15; *Elec W* 65:1207 My 8 '15; *Ry R* 58:668 My 15 '15
 High-tension power transmission problems discussed at December A. I. E. E. meeting. *diag Elec Ry J* 44:1348 D 19 '14
 High-voltage transmission at high altitude. F. H. Thomas. *Il diag plan Elec W* 65:30-3 Ja 2 '15
 Hot and cold water test for insulators. *Elec W* 66:92 J1 10 '15
 Insulating properties of solid dielectrics. H. L. Curtis. *diag U S Bur Stand Bul* 11:359-420 My 10 '15; Excerpt (Volume resistivity table) *Elec R & W Elec'n* 66:171 Ja 23 '15
 Insulation for railway motors. R. E. Hellmund. *Elec Ry J* 45:508 Mr 13 '15
 Insulation testing. G. B. Shanklin. *Gen Elec R* 18:1008 O '15
 Insulator depreciation and effect on operation. A. O. Austin. *Il Am Inst E E Pro* 33:1863-76 D '14; Discussion. 34:1328-49 Je '15
 Insulator depreciation and spark-over voltages; abstracts and discussion of papers by F. W. Peek, jr. and A. O. Austin. *Elec R & W Elec'n* 65:1187-8 D 19 '14; *Elec W* 64:1190-1 D 19 '14
 Insulator performance from operating viewpoint. E. P. Peek. *Il Elec W* 66:1077-9 N 13 '15
 Investigation of dielectric losses with the cathode ray tube. J. P. Minton. *Il Am Inst E E Pro* 34:1115-65 Je '15
 Law of corona and spark-over in oil. F. W. Peek, jr. *Gen Elec R* 18:821-7 Ag '15
 Leakage prevention by shielding, especially in potentiometer systems. W. P. White. *diag Am Chem Soc J* 36:2011-20 O '14
 Leakage through insulation, and how it may show up in repair work. E. C. Farham. *Elec W* 66:979 O 30 '15
 Maintaining high insulation resistance. H. M. McLellan. *diag Power* 41:365 Mr 16 '15
 Maintenance of line insulation. *Elec W* 65: 586-7 Mr 6 '15
 Overhead electrolysis and porcelain strain insulators. S. L. Foster. *Il Am Inst E E Pro* 34:1549-58 Ag '15; Abstract. *Elec Ry J* 46: 522-3 S 18 '15

Insulation—Continued

- Process of impregnating coils; and a large, modern impregnating plant. R. Reid. *Il Gen Elec R* 18:48-51 Ja '15
- Provisional specification for insulator testing covering inspection and tests of high-tension line insulators of porcelain, for over 25,000 volts. *Am Inst E E Pro* 34:1033-45 My '15
- Relation of insulator resistance to puncture voltage. *Elec W* 66:304 Ag 7 '15
- Rogers tree insulator. *Il Elec R & W Elec'n* 67:907-8 N 13 '15
- Slot insulation design, with comparison between the unit dielectric stresses in the slot insulation of a low-voltage alternator and those in a high-voltage machine. H. M. Hobart. *Gen Elec R* 18:366-71 My '15
- Specification for insulator testing; discussion. *Am Inst E E Pro* 34:300-12 F '15
- Temperature limits for mica insulation; discussion. *Elec W* 66:1130 N 20 '15
- Temperature of mica insulation; discussion. *Elec R & W Elec'n* 67:942 N 20 '15
- Test of a direct-current motor. H. C. Lightfoot. *diags Elec R & W Elec'n* 67:240-6 Ag 7 '15
- Testing electrical porcelain; abstract. A. Chernyshoff and C. A. Butman. *Elec W* 65:1554-5 Je 12 '15
- Volume resistivity and surface resistivity of insulating materials. H. L. Curtis. *diag Gen Elec R* 18:996-1001 O '15
- Zinc cables insulated with reclaimed rubber. *Elec W* 65:1614 Je 19 '15
- See also Electric cables; Electric resistance; Electric wire and wiring
- Insulation (heat)**
- Conduits and insulation for heating pipes. C. L. Hubbard. *diags Dom Eng* 72:252-3 Ag 28 '15
- Diatom heat-insulating brick. *Met & Chem Eng* 13:129 F '15
- Insulate huge concrete building for cold storage in Chicago. *Eng Rec* 73:662-3 N 27 '15
- Maintenance of insulation for low temperatures. R. L. Shipman. *Power* 42:118-19 J1 27 '15
- New heat-insulating material. *Eng N* 73:878-9 My 6 '15
- Preparation and properties of fibrox; abstracts. E. W. Weintraub. *Met & Chem Eng* 13:315 My '15; *Eng M* 49:415 Je '15
- Producing magnesia pipe and boiler covering. F. W. Bartlett. *Power* 42:436-7 S 21 '15
- Thermal insulation of high-temperature equipment. P. A. Boeck. *diags Am Inst Min E Bul* 104:1539-50 Ag '15; *Excerpts, Iron Age* 96:353-4 Ag 12 '15; *Sci Am S* 30:335 N 13 '15; *Discussion, Am Inst Min E Bul* 108:2513-19 D '15
- Thermal-insulation tests of electric ovens. A. E. Kennelly, F. D. Everett; and A. A. Prior. *diags Elec W* 65:779-82 Mr 27 '15
- See also Steam pipe coverings
- Insurance, Employers' Liability**
- Economy in insurance methods of employers. *Iron Age* 95:1013-14 My 6 '15
- Insurance, Fire**
- Insurance as an aid to engineers. N. H. Daniels. *Boston Soc C E J* 2:91-103 Mr '15; *Discussion, F. B. Sanborn; N. H. Daniels. 2:199-202 My '15*
- Insurance methods for payment of large losses. J. P. Gray. *Textile World* 49:228-30 My '15
- Profitable specialty: building loss adjuster for fire insurance companies. G. D. Crain, Jr. *Bldg Age* 37:61-2 F '15
- Three kinds of insurance companies. W. H. Forse, Jr. *Elec Ry J* 45:262-3 Ag 14 '15
- Values of printing offices. C. S. Brown. *Inland Ptr* 55:43-5 O '15
- Insurance, Health**
- Protection of the strong; working of German insurance laws for the protection of the poor. *Sci Am S* 79:343 My 29 '15
- Insurance, Liability**
- Reciprocal liability insurance for utilities and other electrical interests. *Elec R & W Elec'n* 66:1055 Je 5 '15
- Insurance, Life**
- Group insurance offer in Brooklyn. *Elec Ry J* 45:262 Ag 7 '15
- See also Annuities
- Insurance, Sickness. See Insurance, Health**
- Insurance, State and compulsory**
- Protection of the strong; working of German insurance laws for the protection of the poor. *Sci Am S* 79:343 My 29 '15
- Intake gates**
- Improved intake for irrigation water from a silt laden stream. A. L. Harris. *diag Eng & Contr* 42:184-5 Ag 19 '14
- Integrating sphere**
- Integrating sphere and arc lamp photometry; with discussion. N. K. Chaney and E. L. Clark. *Illum Eng Soc* 10:1-37 no 1 '15
- Intemperance. See Temperance**
- Interborough rapid transit company, New York**
- Comparative statement of income, profit and loss for the years ended June 30, 1914 and 1915. *Elec Ry J* 45:606-7 S 18 '15
- Interchange of cars. See Freight cars, Interchange of**
- Interchangeable mechanism**
- Interchangeability. J. P. Brophy. *Mach* 21:967-8 Ag '15
- Interchangeable locating and clamping accessories. *Il diags Mach* 21:580-1 Mr '15
- Interest**
- Calculating premiums on bonds. *Munic J* 38:426 Ap 1 '15
- Depreciation, interest and manufacturing cost. W. C. Wright. *J Account* 20:361-4 N '15
- Interest rates on public utility bonds. H. S. Welsh. *Elec Ry J* 45:137-8 Ja 16 '15
- See also Annuities; Discount
- Interferometer**
- Measuring one twenty-millionth of an inch. E. Kell. *Il plan Sci Am* 112:363-4 Ap 17 '15
- Use of the interferometer for the analysis of solutions. L. H. Adams. *diags Am Chem Soc J* 37:1181-94 My '15
- Interior decoration. See House decoration**
- Interlocking plants**
- Clock-work time-lock for electric interlocking machine. *Il Ry Age* 59:699-700 O 15 '15
- Electric interlocking at Adelaide, South Australia. C. G. Pilkington. *Il diag Ry Age* 59:936-8 N 19 '15
- Electric interlocking at Aulon, Tenn. *diag Ry Age* 58:932-3 Ap 30 '15
- Electro-mechanical interlocking. *Ry Age* 59:414 S 3 '15
- Electro-mechanical interlocking at Trenton. W. M. Post. *Il diags Ry Age* 59:419-20 S 3 '15
- Interlocking at North Philadelphia. W. M. Post. *Il Ry Age* 58:136-3 Ja 22 '15
- Interlocking installation on Pacific electric. *Il Elec Ry J* 45:946-7 My 15 '15
- Interlocking tower of stucco on hollow tile, Rock Island lines. E. G. Zorn. *Il diags Ry R* 57:108-9 J1 24 '15
- Internal combustion engines. See Gas and oil engines**
- Internal gear. See Motor trucks—Gearing**
- International association for the prevention of smoke. See Smoke prevention association**
- International association of chiefs of police**
- 22d annual convention, Cincinnati, May 25-27. *Munic J* 38:854-5 Je 17 '15
- International association of fire engineers**
- 43d annual convention, Cincinnati, August 31-September 3. *Munic J* 39:446-8 S 16 '15
- International association of municipal electricians**
- 20th annual convention, Cincinnati, Aug. 24-27. *Elec R & W Elec'n* 67:428-30 S 4 '15
- 20th annual convention, Cincinnati, Aug. 24-27. *Elec W* 66:445-6, 513-14 Ag 28, S 4 '15
- 20th annual convention, Cincinnati, Aug. 24-27. *Munic J* 39:411-13 S 9 '15
- International engineering congress, San Francisco, 1915**
- Abstract of proceedings. *Il Power* 42:494-6 O 5 '15

International engineering congress—Continued

- Abstract of the papers and discussions relative to railroads at San Francisco meeting. Ry Age 59:599-608 O 1 '15
- Abstracts of papers. Elec Ry J 46:622-7 S 25 '15
- Brief abstracts of papers. Am Soc M E J 37: v-xi N '15
- Discussions on subjects pertaining to the electrical industry. Elec W 56:732-4 O 2 '15
- Engineers hold successful congress. Iron Tr R 57:545-6 S 30 '15
- Meetings of the ten sections of the congress. Eng N 74:713-15 O 7 '15
- Opening session. Eng N 74:660-1 S 30 '15
- Papers on metallurgy. Met & Chem Eng 13: 655-62, 721-9 O 1-15 '15
- Report of electrical and related sessions. Elec R & W Elec'n 67:614-18 O 3 '15
- Some of the mechanical and metallurgical subjects. Iron Age 96:780-2 S 30 '15
- International gas congress, San Francisco, 1915**
- Opening address. A. C. Humphreys. Am Gas Light J 103:209-10 O 4 '15
- Plans for the meeting in September. El. C. Jones. Am Gas Light J 103:161-2 Mr 15 '15
- International institute of agriculture**
- New internationalism in agriculture. H. C. Price. Sci Am S 80:109 Ag 14 '15
- International law**
- War and the British engineer; trading with the enemy; a comparison. Engineer 119: 114-15 Ja 29 '15
- See also Peace; War
- International nickel company**
- Canada's nickel trouble. Eng & Min J 99:30-1 Ja 2 '15
- International railroad master blacksmiths' association**
- 23d annual convention, Philadelphia, Aug. 17-19. Ry Age 59:387-9 Ag 27 '15
- 23d annual convention, Philadelphia, Aug. 17-19. Ry Age (Mech ed) 89:471-81 S '15
- International railway fuel association**
- 7th annual convention, Chicago, May 17-20. Ry Age 58:1054-61, 1113-19 My 21-28 '15
- 7th annual convention, Chicago, May 17-20. Ry Age (Mech ed) 89:271-83 Je '15
- 7th annual convention, Chicago, May 17-20. Ry R 56:696-703 My 22 '15
- International railway general foremen's association**
- 11th annual convention, Chicago, July 13-16. Ry Age 59:102-4, 155-8 Jl 16-23 '15
- 11th annual convention, Chicago, July 13-16. Ry Age (Mech ed) 89:417-26 Ag '15
- 11th annual convention, Chicago, July 13-16. Ry R 57:76-9, 118-20 Jl 17-24 '15
- International typographical union**
- 61st convention, Los Angeles. Inland Ptr 55: 833-5 S '15
- Interrupters**
- Denatured electric current: an Italian device by which a heating circuit is useless for lighting. G. Pincherle. diag Eng M 48:789-40 F '15
- Interstate commerce**
- Interstate commerce commission and its work. El. El. Clark. Ry Age 59:493-6 S 17 '15; Excerpts (Changes in the Interstate commerce law) Ry R 57:400-3 S 25 '15
- Interstate commerce defined; remarks of Justice Day of Supreme court in South Covington & Cincinnati street railway case. Elec Ry J 45:150 Ja 16 '15
- Interstate commerce transcends state law. A. P. Nevin. Am Ind 15:26-7 Ap '15
- See also Railroads—Rates; Railroads and states—United States
- Interstate commerce commission**
- Absentee landlordism and the commission. Ry Age 57:1072 D 11 '14
- Annual report. Ry R 55:748-50; 56:20-4, 159-64 D 19, '14, Ja 2, 30 '15
- Argument on authority of Interstate commerce commission to require reports of accidents and other statistics from urban railways. J. T. Beasley. Elec Ry J 44:1389-90 D 26 '14
- Government regulation of railway operation. S. O. Dunn. Ry Age 58:184-7 Ja 29 '15

- Instructions for roadway and track men on federal valuation; abstract of second tentative draft issued by Interstate commerce commission. Eng Rec 70:688-40 D 12 '14; Ry Age 58:82-4 Ja 8 '15
- Interstate commerce commission and its work. El. El. Clark. Ry Age 59:493-6 S 17 '15; Same. Eng & Contr 44:273-6 O 6 '15
- Interstate commerce commission refuses to decide international jurisdiction. Ry R 56: 665-6 My 15 '15
- Private car lines not common carriers. Ry Age 58:1051-2 My 21 '15
- Railway regulation handicapped by muddled official statistics. Ry R 56:130-1 Ja 23 '15
- Recommendations of Interstate commerce commission and parts of report of general interest to electric railways. Elec Ry J 44: 1358-9 D 19 '14
- Reorganization. Ry R 56:17-18 Ja 2 '15
- Report of the chief inspector, division of safety. H. W. Belnap. Ry R 56:226-7 F 13 '15
- Report on the Rock Island. Ry Age 59:823-7 Ag 20 '15
- 28th annual report. Ry Age 57:1086-7 D 11 '14
- Valuation conference in Washington, March 22. Eng Rec 71:824-5 Mr 13 '15
- Interurban railroads**
- 1500-volt interstate interurban railway; O. L. & I. Ry. Il map Elec Ry J 46:1073-4 N 27 '15
- Interurban as an agency of transportation. J. F. McClure. Elec Ry J 46:1077-8 N 27 '15
- Operation of the Pacific electric railway. Il map Ry Age 59:225-9 Ag 6 '15
- Seven years of operating experience of a single-phase interurban railway; Chicago, Lake Shore & South Bend railway. Il map Elec Ry J 46:940-5 N 6 '15
- See also Electric railroads
- Intoxication. See Temperance**
- Intrichments**
- In the trenches. G. Lenotre. Sci Am 112:416+ My 1 '15
- Protecting the frontier. Il Sci Am S 80:264 O 30 '15
- Trench warfare; ten hours of trench digging for ten minutes of rifle fire. W. D. A. Anderson. Il Sci Am 113:6-8 Jl 3 '15
- Invar**
- Medal for the inventor of invar. Sci Am 112: 327+ Ap 3 '15
- Inventions**
- Governmental indifference to invention. Sci Am 113:74-Jl 24 '15
- Great inventions and the public. Sci Am S 80:170 S 11 '15
- Greatest ten years of invention. Sci Am 112: 510 Je 5 '15
- Inventions wanted. Sci Am 112:488 My 29 '15
- Inventor's show at New York. Il Sci Am 111: 528 D 26 '14
- Nothing more to invent? Sci Am 113:834 O 16 '15
- Patent office and invention since 1845. W. I. Wyman. Sci Am 112:533-4+ Je 5 '15
- Practical devices and the lack of capital. C. El. Duryea. Sci Am 113:119 Ag 7 '15
- Prizes for scientists. Sci Am S 80:228 O 9 '15
- Seventy years of inventions. Il Sci Am 112:511-20+ Je 5 '15
- Tasks of German inventors in wartime. Sci Am 113:214+ S 4 '15
- See also Inventors; Patents; Phonopticon
- Inventories**
- Four-part factory inventory system. H. A. Russell. Iron Age 95:1218-25 Je 3 '15
- Inventory for printers. Inland Ptr 54:692-3 F '15
- Perpetual inventory in practical stores operation. J. B. Green. Eng M 48:879-83 Mr '15
- Suggested form of inventory for valuation of common carrier property. D. F. Jurgensen. Assn Eng Soc J 55:129-38 O '15
- Symposium on inventories and appraisals of properties. C. L. Cory; W. G. Vincent, Jr.; W. J. Norton. Am Inst E E Pro 34:2131-56 S '15
- Valuation of merchandise inventories. J Account 18:461-8 D '14

Inventors

- Inventors and the war. *Sci Am* 113:17 J1 3 '15
 Inventors' bank. *Sci Am S* 79:362 Ap 24 '15
 Inventors too cautious. *Sci Am* 113:106 Ag 7 '15
See also Inventions

Investments

- Investment banker and the engineer. C. A. Hobeln. *Assn Eng Soc J* 54:237-57 Je '15
See also Annuities; Bonds; Securities

Iodide

- Permanganate and iodimetric determination of iodide in presence of chloride and bromide. P. L. Barnebey. *Am Chem Soc J* 37:1498-1507 Je '15

Iodine

- Free energy of iodine compounds. G. N. Lewis and M. Randall. *Am Chem Soc J* 86:2259-68 N '14
 Iodine number of linseed and petroleum oils. W. H. Smith and J. B. Tuttle. *U S Bur Stand Tech Pa* 37:1-17 '14; *Same. J Ind & Eng Chem* 6:994-8 D '14
 Study of the system: water, potassium iodide and iodine at zero degrees. G. Jones and M. L. Hartmann. *Am Chem Soc J* 37:241-58 F '15
 Use of iodine as a dehydrating and condensing agent. H. Hibbert. *Am Chem Soc J* 37:1748-63 J1 '15
 Vapor pressure of iodine between 50° and 95°. G. P. Baxter and M. R. Grose. *Am Chem Soc J* 37:1081-72 My '15

Iodoanil

- Action of nitric acid on iodoanil. L. Clarke and E. K. Bolton. *Am Chem Soc J* 36:1899-1908 S '14

Ionization

- Atoms and ions. J. J. Thomson. *Sci Am S* 79:274, 290-1, 310-11, 326-7, 346-7, 362-3 My 1-Je 5 '15
 Electric strength of air. J. B. Whitehead. *Am Inst El E Pro* 34:843-65 My '15; Discussion. 34:2997-3005 D '15
 Osmotic pressure and concentration in solutions of electrolytes, and the calculation of the degree of ionization. S. J. Bates. *Am Chem Soc J* 37:1421-45 Je '15
 Photo-electricity: the intimate relations of light and electricity. J. A. Fleming. *Sci Am S* 80:18-19 J1 10 '15
 Radiometric measurements of the ionization constants of indicators. E. J. Shaeffer, M. C. Paulus, and H. C. Jones. *diags Am Chem Soc J* 37:776-807 Ap '15
 Radiometric measurements of the ionization constants of indicators. M. G. Paulus, J. F. Hutchinson and H. C. Jones. *Am Chem Soc J* 37:1694-1704 J1 '15
 Theoretical and experimental consideration of electrical precipitation. A. F. Nesbit. *il diags Am Inst El E Pro* 34:507-22 Ap '15; Discussion. 34:2646-52 N '15
See also Radioactivity

Ions

- Action of certain colloids on ions during electrolysis. A. Mutscheller. *diags Met & Chem Eng* 13:363-7 Je '15
 Atoms and ions. J. J. Thomson. *Sci Am S* 79:274, 290-1, 310-11, 326-7, 346-7, 362-3 My 1-Je 5 '15
 Development in electromagnetism. E. Bloch. *Sci Am S* 79:386-7 Je 5 '15
 Hydrogen- and hydroxyl-ion activities of solutions of hydrochloric acid, sodium and potassium hydroxides in the presence of neutral salts. H. S. Harned. *diag Am Chem Soc J* 37:2460-82 N '15
 Larger ions in the air. J. A. Pollock. *Sci Am S* 80:75 J1 31 '15
 Reactions of sodium ethylate with methyl iodide in absolute ethyl alcohol at 25°. H. C. Robertson, Jr. and S. F. Acree. *Am Chem Soc J* 37:1903-9 Ag '15
 Reinterpretation of the reactions of sodium methylate and sodium ethylate with 1, 2-dinitrobenzene, and 1, 2, 4-dinitrochlorobenzene and 1, 2, 4-dinitrobenzene. S. F. Acree. *Am Chem Soc J* 37:1909-14 Ag '15

Relative migration velocities of the ions in complex electrolytes. A. Mutscheller. *Met & Chem Eng* 13:439-42 J1 '15

See also Dissociation; Electrochemistry; Electrolysis; Electrons; Ionization; Solution (chemistry)

Iowa electrical contractors' association

4th semi-annual convention, Keokuk, April 20-22. *Elec R & W Elec'n* 66:810 My 1 '15

Iowa state association of master plumbers

27th annual convention at Davenport. *Dom Eng* 70:151-3 Ja 30 '15
 27th annual convention, Jan. 19-21, 1915. *Metal Work* 83:208-9 Ja 29 '15

Iowa street & interurban railway association

12th annual convention, Keokuk, April 22-23. *Elec Ry J* 45:839-41 My 1 '15

Iquitos, Peru**Sanitary affairs**

Sanitation of Iquitos, Peru. G. M. Converse. *il Eng N* 73:201 F 4 '15

Iron

- Corrosion of iron. L. C. Wilson. *Eng M* 48:517-23, 667-74, 849-58; 49:58-66, 202-10 Ja-MY '15
 Determination of ferrous iron in silicates by titration with dichromate. O. L. Barnebey. *Am Chem Soc J* 37:1829-35 Ag '15
 Effect of boron upon the magnetic and other properties of electrolytic iron melted in vacuo. T. D. Yensen. *il Ill U Eng Exp Sta Bul* 77:1-19 '15
 Electrical resistance and critical ranges of pure iron. G. K. Burgess and I. N. Kellberg. *U S Bur Stand Bul* 11:457-70 My 10 '15
 Electrolytic corrosion of iron in soils. B. McCollum and K. H. Logan. *U S Bur Stand Tech Pa* 25:1-69 '13; Abstract. *J Fr Inst* 180:228-32 Ag '15
 Electrolytic iron; abstracts. L. Guillet. *Met & Chem Eng* 12:787 D '14; *Eng M* 49:928-9 S '15; *J Fr Inst* 180:461-2 O '15
 Influence of different elements on the corrosion of iron. L. C. Wilson. *Eng M* 50:78-86 O '15
 Interference measurements of wave lengths in the iron spectrum (2851-3701). K. Burns and W. F. Meggers. *U S Bur Stand Bul* 12:179-205 N 8 '15; Abstract. *J Fr Inst* 180:375-6 S '15
 Iron in tomatoes. C. A. Brautlecht and G. Crawford. *J Ind & Eng Chem* 6:1001-2 D '14
 Magnetic and other properties of electrolytic iron melted in vacuo. T. D. Yensen. *pl Am Inst El E Pro* 34:237-61 F '15; Abstract. *Sci Am S* 79:247 Ap 17 '15
 Magnetic behaviour of iron under alternating magnetization of sinusoidal wave-form. N. W. McLachlan. *diags Inst El E J* 53:809-19 Je 15 '15
 Magnetic studies of mechanical deformation in certain ferromagnetic metals and alloys. H. Hanemann and P. D. Merica. *il Am Inst Min El Bul* 108:2371-85 D '15
 Metallic iron in coke samples. J. R. Campbell. *Colliery* 35:538-41 My '15
 99.84-per-cent-pure iron for electrical purposes. *il Elec W* 66:213-14 J1 24 '15
 Passivity of metals. H. G. Byers and S. C. Langdon. *diags Am Chem Soc J* 36:2004-11 O '14
 Permanganate determination of iron in the presence of fluorides—the analysis of silicates and carbonates for their ferrous iron content. O. L. Barnebey. *Am Chem Soc J* 37:1481-96 Je '15
 Protective coatings for iron and steel. E. P. Later. *Foundry* 42:497-8; 43:35+ D '14-Ja '15
 Rust removal by chemical reagents. J. N. Friend and C. W. Marshall. *Iron Tr R* 56:1023-4 My 20 '15
 Symposium on iron and steel. *Met & Chem Eng* 13:655-7 O 1 '15
 Why iron and steel corrode. J. Aston. *Iron Tr R* 56:428-6 F 25 '15
See also Blast furnaces; Cast iron; Chilled iron; Corrosion and anti-corrosives; Corrugated iron; Foundry practice; Galvanizing; Iron alloys; Iron founding; Iron industry; Iron metallurgy; Iron mines and mining; Iron ores; Metallography; Pig iron; Slag; Steel; Wrought iron

Iron—Continued

Analysis

- Analoid method for the determination of manganese in steel, iron ore and slag. *Met & Chem Eng* 12:793-4 D '14
- Analoid method for the determination of phosphorus in steel, iron and slag. *Met & Chem Eng* 13:191-2 Mr '15
- Determination of boron in iron. J. M. Lindgren. *Am Chem Soc J* 37:1137-9 My '15
- Method for determining gases in steel. P. Goerens and J. Paguet. *diag Iron Age* 95:1060-1 My 13 '15

Testing

- Iron-cobalt alloy, Fe_3Co , and its magnetic properties. T. D. Yensen. *II Gen Elec R* 18:881-7 S '15

Iron, Corrugated. See Corrugated iron

Iron alloys

- Effect of boron upon the magnetic and other properties of electrolytic iron melted in vacuo. T. D. Yensen. *II U Eng Exp Sta Bul* 77:1-19 '15
- Iron-cobalt alloy, Fe_3Co , and its magnetic properties. T. D. Yensen. *II Gen Elec R* 18:881-7 S '15
- Magnetic properties of some iron alloys melted in vacuo. T. D. Yensen. *II diag Am Inst E E Pro* 34:2455-95 O '15
- Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *diags U S Bur Mines Bul* 77:102-85 '14; Excerpts. *Iron Tr R* 56:717-22+, 765-7+, 862-7+ Ap 8-15, 29 '15
- Phenomenon of passivity in connection with ferrous alloys of different composition and structure. H. W. Moseley. *Am Chem Soc J* 37:2326-33 O '15
- See also Ferrophosphorus; Ferrovanadium; Invar; Spiegeleisen

Iron and steel electrical engineers, Association of. See Association of iron and steel electrical engineers

Iron and steel institute

- Annual meeting. *II Engineer* 119:500-2, 527-8 My 21-28 '15
- Autumn conference, Sept. 23-24. *Engineer* 120:313-14, 334-6 O 1-8 '15
- Autumn meeting, London, Sept. 23. *Iron Tr R* 57:798-9 O 21 '15

Iron and steel institute, American. See American iron and steel institute

Iron carbides

- Carburisation of iron at low temperatures in blast furnace gases; abstracts, with discussion. T. H. Byrom. *Engineer* 120:335 O 8 '15; *Iron Age* 96:1176-8 N 18 '15
- Constitution of the iron-carbon alloys: a chemical theory to explain the different properties by the existence of ferrated carbides. G. Auchy. *Iron Age* 95:50-1 Ja 7 '15

Iron-carbon diagram

- Modified iron-carbon diagram. E. A. Sperry. *Met & Chem Eng* 13:469-71 Ag '15

Iron founding

- Blow holes and sulphur. R. A. Pitman. *Foundry* 43:95-6 Mr '15
- Blow-holes in a casting. W. J. Keep; C. E. Lyall. *Foundry* 43:262, 304-5 Ji-Ag '15
- Casting iron around pipe. E. A. Vaupel. *diag Foundry* 43:241 Je '15
- Castings from blast furnace. *Iron Age* 96:1054 N 4 '15
- Comparison of analysis and shrinkage. W. J. Keep. *Foundry* 43:58-9 F '15
- Continuous malleable cupola practice increasing output of malleable castings. L. E. Gilmore. *Iron Age* 95:306-8 F 4 '15
- Control of chill in cast iron, considering the elements effective in the manufacture of malleable castings and chilled car wheels. G. M. Thrasher. *II Am Inst Min E Bul* 106:2129-38 O '15; Same. *Foundry* 43:491-3+ D '15; Same. *Iron Tr R* 57:1171-3+ D 18 '15; Excerpt (Natural chill of cast iron) *Met & Chem Eng* 13:39-40 Ja '15
- Controlling the sulphur in melting pig iron. W. M. Carr. *Foundry* 43:189-90, 310 My, Ag '15
- Dull iron. W. J. Keep. *Foundry* 43:322 S '15
- Fuel ratio for car wheel iron. A. S. Dowler. *Foundry* 43:97-8 Mr '15

- Fuel ratio on car wheel iron. W. J. Keep. *Foundry* 43:51-2 F '15
- History of a bad furnace cast. W. G. Imhoff. *Iron Tr R* 57:131-2 Ji 15 '15
- Loss in melting. W. J. Keep. *Foundry* 43:272 Ji '15
- Low carbon pig iron for iron castings. *Iron Age* 95:796-7 Ap 8 '15
- Making car wheels at the Lenoir car works. G. S. Evans. *Foundry* 43:351-3, 428-31, 435-9 S-N '15
- Malleable iron castings for the automobile industry. R. Moldenke. *Horseless Age* 35:69-72 Ja 13 '15
- Mixture for chilled crusher rolls. W. J. Keep. *Foundry* 43:187 My '15
- Modern foundry pig-iron mixer; operating and chemical results with blast-furnace and coke-oven gases; abstract. O. Simmersbach. *Iron Age* 96:312-13 O 7 '15
- Modern iron founding. R. Onions. *II diags Engineer* 119:411-18 Ap 23 '15
- Molding air compressors on jolt-rammers. *II Foundry* 43:18-19 Ja '15
- Molding cast-iron tunnel linings. L. J. Josten. *II Iron Age* 95:715-19 Ap 1 '15
- Molten iron boiling in ladles. W. J. Keep. *Foundry* 43:439 N '15
- Old and new methods of making carwheels. C. V. Slocum. *diags Iron Age* 96:676-9 S 23 '15
- Opportunities for the foundry engineer. W. F. Prince. *Foundry* 43:63-4 F '15
- Overcoming slag and dirt in gray iron. P. R. Micks. *Foundry* 43:186-7 My '15
- Phosphorus limit in malleable castings. E. Touceda. *II Iron Tr R* 57:634-6 S 30 '15; Same. *Foundry* 43:446-9 N '15; Same cond. *Iron Age* 96:324-6 O 21 '15
- Pin holes and internal shrinkage. W. J. Keep. *Foundry* 43:19-20 Ja '15
- Pouring systems for gray-iron foundries. *II Iron Age* 96:1123-5 N 11 '15
- Shot in gray iron. W. M. Carr. *Foundry* 43:52 F '15
- Shot in gray iron castings. R. A. Pitman. *Foundry* 43:103 Mr '15
- Slow melting in the cupola. C. Metcalf. *Foundry* 43:106 Mr '15
- Slow melting in the cupola. J. H. Anderson. *Foundry* 43:180-1 My '15
- Standardizing air furnace practice. A. L. Pollard. *Foundry* 43:412-13 O '15
- Test on melting shot iron in the cupola: experiment in a stove foundry. G. E. Pickup. *II Foundry* 42:467-8 D '14
- See also Cast iron; Foundry practice; Molding machines

Iron handling

- Handling iron and cinder at the blast furnace. J. E. Johnson, jr. *II diags Met & Chem Eng* 13:43-50 Ja '15

Iron industry and trade

- British India. U S Sp Cons Rep 72:205-14 '15
- British iron and steel trade in 1914. *Iron Age* 95:144-5 Ja 14 '15
- Charts showing fluctuations in iron and steel prices for twenty years. *Iron Tr R* 56:8a Ja 7 '15
- Chicago iron trade in 1914. O. J. Abell. *Iron Age* 95:2-4 Ja 7 '15
- Cincinnati iron trade in 1914. C. L. Smith. *Iron Age* 95:8-10 Ja 7 '15
- Cincinnati market's gloomy year. S. G. Backman. *Iron Tr R* 56:103+ Ja 7 '15
- European iron and steel in 1914. *Eng & Min J* 99:269-70 F 6 '15
- Few furnaces completed in 1914. R. V. Sawhill. *Iron Tr R* 56:1233-4 D 31 '14
- French steel plants in war time. F. Miltoun. *Iron Age* 95:940-2 Ap 29 '15
- Future of Birmingham district. R. R. Silver. *II Iron Tr R* 56:135-6 Ja 14 '15
- Germany's steel output for August. *Iron Age* 96:882 O 14 '15
- Independents are conspicuous: developments of the past year on Minnesota iron ranges. E. C. Estep. *II Iron Tr R* 56:72-81 Ja 7 '15
- Iron a factor in the world's progress. J. Birkinbine. *J Fr Inst* 179:471-85 Ar '15; Same cond. *Iron Tr R* 56:1059-62 My 27 '15; Excerpts. *Sci Am S* 80:326 N 20 '15
- Iron and steel market at Pittsburgh in 1914. C. F. Williams. *Iron Tr R* 56:40-4 Ja 7 '15

Iron industry and trade—Continued

- Iron and steel prices for seventeen years. Iron Age 95:16-17 Ja 7 '15
- Iron and steel statistics. F: Hobart. Eng & Min J 99:70-1 Ja 9 '15
- Iron industry in Brazil. E. C. Harder. II maps Am Inst Min E Bul 94:2573-88 O '14; Same cond. Iron Tr R 55:718-20+ O 15 '14; Same cond. Metal Work 84:148-5+ J1 30 '15; Abstract. Iron Age 94:888-9 O 15 '14; Discussion. Am Inst Min E Bul 100:813-16 Ap '15
- Iron industry in Europe. Eng & Min J 99:833 My 8 '15
- Iron ore supplies for seaboard furnaces. El. C. Eckel. II map Iron Age 95:69-73 Ja 7 '15
- Iron, steel and coal in Dixie. H. S. Chamberlain. Iron Tr R 58:176-8+ Ja 21 '15
- Lake iron ore prices. Eng & Min J 99:790-1 My 1 '15
- Lake Superior iron conditions. Eng & Min J 100:443-4 S 11 '15
- Lake Superior iron ore. Eng & Min J 99:24 Ja 2 '15
- Lake Superior iron ranges; the 1914 season. Eng & Min J 99:73-6 Ja 9 '15
- Last year's iron ore prices prevail. Iron Tr R 56:804-6 Ap 22 '15
- Light ore movement to the east. C. J. Stark. II map Iron Tr R 56:137-42 Ja 14 '15
- Location of the iron industry. R. Olds. Eng & Min J 99:502-3 Mr 13 '15
- M. A. Hanna & co. sell Hill ore. Iron Tr R 55:1027 D 3 '14
- Minette iron ores of the Lorraine district. H. H. Campbell. Iron Age 96:168-9 J1 15 '15
- Money and iron: fact, comment. Iron Tr R 56:212-13, 294-5 Ja 28-F 4 '15
- More steel-works iron. Iron Age 95:314 F 4 '15
- Much more merchant ore from lake mines. D. E. Woodbridge. Iron Age 95:148-9 Ja 14 '15
- Neglecting the export market for southern iron. P. G. Donald. Am Ind 15:21 My '15
- Pacific coast iron situation; the iron ores of California and possibilities of smelting. C. C. Jones. map Am Inst Min E Bul 105:1887-98 S '15; Discussion. 108:2498-501 D '15
- Philadelphia iron trade in 1914. C. Lundberg. Iron Age 95:7-8 Ja 7 '15
- Pittsburgh iron and steel markets. B. E. V. Luty. map Eng & Min J 99:72-3 Ja 9 '15
- Pittsburgh iron trade in 1914. R. A. Walker. Iron Age 95:5-6 Ja 7 '15
- Production of wrought pipe, cast pipe and galvanized sheets in 1913. Iron Age 94:1514 D 31 '14
- Selling price of castings. A. O. Backert. Iron Tr R 56:228-30+ Ja 28 '15
- Some aspects of the iron and steel industry in Europe. U S Sp Cons Rep 71:1-48 '15
- Survey of events in England: effects of the great war on iron and steel. J. Horton. Iron Tr R 56:64-6, 82 Ja 7 '15
- Tendencies in the location of the iron industry. Eng & Min J 99:508-6 Mr 13 '15
- Wages and hours of labor in the iron and steel industry. table Mach 21:954 Ag '15
- War and the export trade. C. J. Stark. Iron Tr R 56:31-2, 90-4 Ja 7 '15
- Year of disappointment in East. C. J. Stark. Iron Tr R 56:38-9, 97-9 Ja 7 '15
- Year of low prices at Chicago. G. H. Manlove. Iron Tr R 56:36-7 Ja 7 '15
- Year of retrogression in the iron trade. Iron Age 95:1-2 Ja 7 '15

See also Foundry practice; Iron mines and mining; Pig iron; Rolling mills; Scrap metal; Steel industry; Stoves; United States steel corporation

Iron metallurgy

- Bosh fuel domes. F: L. Grammer. diag Eng Soc W Pa 31:809-20 O '15
- Chemical principles of the blast furnace. J. E. Johnson, Jr. Met & Chem Eng 13:536-43, 684-8 S 1-15 '15
- Concentrating plant of the Moose Mountain. Ltd. B. B. Hood. II diag Eng & Min J 99:973-6 Je 5 '15
- Concentration by the Goltra process: beneficiation of brown iron ores by means of a current of hot air and properly located screens. W: B. Phillips. Iron Age 94:1148-50 N 12 '14; Abstract. Eng M 48:582-5 Ja '15
- Contributions of the chemist to the iron and steel industry. A. S. Cushman. J Ind & Eng Chem 7:934-5 N '15

- Crude oil as a reducing agent. Iron Tr R 56:525-6 Mr 11 '15
- Desulphurization in cupola practice. Iron Age 95:468-9 Ag 26 '15
- Electric pig iron in Norway: a new type of furnace using coke successfully—cost data. diags Iron Age 95:1120 My 20 '15
- Electro-thermic iron-ore smelting in Scandinavia. Eng & Min J 100:351-2 Ag 28 '15
- Evolution of the malleable process. J. P. Pero and J. C. Nulsen. Iron Age 96:1168-70 N 18 '15
- Handling iron and clinder at the blast furnace. J. E. Johnson, Jr. II diags Met & Chem Eng 13:43-50, 85-9 Ja-F '15
- High blast heats in Mesaba practice. W. Mathesius. Am Inst Min E Bul 99:539-55 Mr '15; Same cond. Iron Age 95:476-8 F 25 '15; Same cond. Iron Tr R 56:265-6, 368 F 18 '15; Discussion. Am Inst Min E Bul 101:1100-7 My '15
- Iron manufacture by electrolysis. L. Guillet. II Iron Age 94:1390-2 D 17 '14; Same. Sci Am S 79:70-1 Ja 30 '15
- Leaching experiments on the Ajo ores. S. Croasdale. Am Inst Min E Bul 92:1919-24 Ag '14; Excerpt (Manufacture of sponge iron as a precipitant for copper). Eng & Min J 99:826-8 F 13 '15
- Magnetic-concentration mill at Mt. Hope, N. J. S: Shapira. II diags Eng & Min J 99:559-65 Mr 27 '15
- Manufacture and use of pure iron. H. See. II Assn Eng Soc J 54:133-41 Ap '15
- Oxy-acetylene welding practice; metallurgy of iron and its relation to welding. S. W. Miller. II Mach 22:315 N '15
- Possible applications of oxygen in metallurgy. J. E. Johnson, Jr. Met & Chem Eng 13:483-4 Ag '15
- Progress in blast furnace practice. A. El. Macoun. Iron Tr R 56:1129-31, 1167-9, 1255-64 Je 3-17 '15
- Progress in blast furnace practice. A. N. Diehl. Iron Tr R 57:28-9, 31 J1 '15
- Progress in the smelting of Mayari ore. R: V. McKay. Iron Age 93:1386-9+ Je 4 '14; Same. Iron Tr R 55:1215-21 D 31 '14
- Recovery of fine-dust iron. R. Baggaley. Iron Age 95:1109 My 20 '15
- Removal of metalloids in the pig-washing process. E: L. Ford. Am Inst Min E Bul 108:2394-7 D '15
- Rotary kilns for desulphurization and agglomeration. S: E. Doak. Am Inst Min E Bul 105:2061-6 S '15; Same. Iron Age 96:674-6 S 9 '15
- Slags from titaniferous ores. F. E. Bachman. diag Iron Tr R 55:1040-2 D 3 '14
- Technical progress in iron and steel in 1914. J. E. Johnson, Jr. Iron Age 95:19-23 Ja 7 '15
- Thermal principles of the blast furnace. J. E. Johnson, Jr. Met & Chem Eng 13:718-20, 787-92, 833-40, 905-10, 954-62 O 15-D 15 '15
- Titaniferous ores in the blast furnace. F. E. Bachman. Iron Age 94:1470-1; Discussion. A. H. Lee; R. H. Lee. 94:1471-3 D 24 '14
- Vanadium in German ores. L. Blum. Iron Age 95:847 Ap 15 '15
- Washed metal. H: D. Hibbard. II plan Am Inst Min E Bul 108:2387-94 D '15
- See also Blast furnaces; Case hardening; Cast iron; Corrosion and anti-corrosives; Foundry practice; Galvanizing; Iron alloys; Iron mines and mining; Metallography; Pig iron; Slag; Steel metallurgy; Wrought iron

Iron mines and mining

See also Iron ores

Chile

- Operations at the Tofo iron mines in 1914. map Iron Age 94:1448-9 D 24 '14
- Tofo iron mines in 1914. C. A. Buck. map Eng & Min J 99:146-6 Ja 16 '15

China

- Iron-mining situation in north China. Eng & Min J 99:786 My 1 '15

Lake Superior region

- Lake Superior iron ranges; the 1914 season. Eng & Min J 99:73-6 Ja 9 '15
- Little activity on old ranges. Iron Tr R 56:232-3 Ja 28 '15

Iron mines and mining—Continued

Michigan

- Electrical plant of the Wakefield iron co. H. I. Pearl and J. Green. *Il plan Eng & Min J* 100:349-51 Ag 23 '15
- Finding the Judson orebody. L. E. Ives. *Il map Eng & Min J* 99:443-5 Mr 6 '15
- Investments in Iron river district. C. A. Tupper. *Il Iron Tr R* 56:759-64 Ap 15 '15
- Marquette range sixty years ago. R. Kelly. *Eng & Min J* 99:201 Ja 23 '15
- Mining methods on Gogebic range. O. E. Olson, O. M. Schaus and F. Blackwell. *diags Iron Tr R* 57:735-7 O 14 '15
- Observations on the appraisal of the iron mines of Michigan. C. H. Baxter. *Eng & Min J* 99:439-40 Mr 6 '15
- Open pit mining on Gogebic range. W. C. Hart. *Iron Tr R* 57:523-5 S 16 '15

Minnesota

- Exploration work on Cuyuna range. P. W. Donovan. *Iron Tr R* 57:534+ S 16 '15
- Good results in south range on the Cuyuna. *Iron Tr R* 57:363-4 Ag 19 '15
- Independents are conspicuous: developments of the past year on Minnesota iron ranges. H. C. Estep. *Il Iron Tr R* 56:72-81 Ja 7 '15
- Lake Superior mining institute 20th annual meeting. *Il Iron Tr R* 57:642-5 S 16 '15
- Manganiferous iron ores of the Cuyuna range. E. P. McCarty. *Eng & Min J* 100:400-2 S 4 '15
- Orebody of the Mesabi range. J. F. Wolff. *Il map Eng & Min J* 100:89-94, 135-9, 178-85, 219-24 JI 17-Ag 7 '15
- Structure of the Cuyuna iron-ore district of Minnesota. C. A. Cheney, jr. *map Eng & Min J* 99:1113-15 Je 26 '15

New Jersey

- Develop nation's oldest iron mine: Empire steel & iron co.'s Mount Hope properties. H. M. Roche and J. C. Stoddard. *Il plans Iron Tr R* 57:171-6+ JI 22 '15

New York (state)

- Improvements at Port Henry iron mines. *diags Iron Age* 95:1390-2 Je 24 '15

Russia

- Russia—its future as a coal and iron producer. C. R. King. *map Eng M* 48:481-92 Ja '15

Iron ores

- Additional data on origin of laterite iron ores of eastern Cuba. C. K. Leith and W. J. Mead. *Am Inst Min E Bul* 103:1977-80 JI '15
- Ancient sedimentary iron ores of British India. C. M. Weld. *maps Econ Geol* 10:435-52 JI '15
- Decline in production of iron ore. *Metal Work* 82:380 Mr 12 '15
- Drying iron ore on the Mesabi range. E. J. Collins. *Eng & Min J* 99:696-7 Ap 17 '15
- Exploring for Adirondack ores. C. S. Clark. *Il map Iron Tr R* 56:617-19 Mr 25 '15
- Formation and distribution of bog iron-ore deposits. C. L. Dake. *Am Inst Min E Bul* 103:1429-36 JI '15; *Excerpts. Eng & Min J* 100:74-5 JI 10 '15; *Excerpts. Iron Tr R* 57:486 S 9 '15; *Discussion. Am Inst Min E Bul* 103:2475-6 D '15
- Formation and distribution of residual iron ores. C. L. Dake. *Am Inst Min E Bul* 101:937-46 My '15
- Geology of the iron-ore deposits in and near Daiquiri, Cuba. J. F. Kemp. *Il diags map Am Inst Min E Bul* 105:1301-36 S '15; *Discussion. 105:2478 D '15*
- Iron deposits of Daiquiri, Cuba. W. Lindgren and C. P. Ross. *bibliog Il Am Inst Min E Bul* 106:2171-90 O '15
- Iron industry in Brazil. E. C. Harder. *Il maps Am Inst Min E Bul* 94:2573-86 O '14; *Same cond. Iron Tr R* 55:713-20+ O 15 '14; *Same cond. Metal Work* 84:143-5+ JI 30 '15; *Abstract. Iron Age* 94:888-9 O 15 '14; *Discussion. Am Inst Min E Bul* 100:813-16 Ap '15
- Iron ore supplies for seaboard furnaces. E. C. Ekel. *Il map Iron Age* 95:69-73 Ja 7 '15
- Manganiferous iron ores of the Cuyuna range. E. P. McCarty. *Eng & Min J* 100:400-2 S 4 '15
- Mayari iron-ore deposits, Cuba. J. F. Kemp. *Il Am Inst Min E Bul* 98:129-54; 103:1461-2 F, JI '15

- Minette iron ores of the Lorraine district. H. H. Campbell. *Iron Age* 96:188-9 JI 15 '15
- New method of making sieve tests. R. H. Bassett. *Iron Tr R* 57:230+ JI 25 '15
- Ore reserves in United States. J. Birkinbine. *Iron Tr R* 55:1046+ D 8 '14
- Orebody of the Mesabi range. J. F. Wolff. *Il map Eng & Min J* 100:89-94, 135-9, 178-85, 219-24 JI 17-Ag 7 '15
- Oriskany iron ores of Virginia. C. M. Weld. *maps Econ Geol* 10:399-421 JI '15
- Pacific coast iron situation; the iron ores of California and possibilities of smelting. C. C. Jones. *map Am Inst Min E Bul* 105:1897-98 S '15
- Problems in iron ore geology in Sweden and in America. P. Geijer. *Il Econ Geol* 10:299-329 Je '15
- Progress in blast furnace practice. A. N. Diehl. *Iron Tr R* 57:28-9, 31 JI 1 '15
- Structure of the Cuyuna iron-ore district of Minnesota. C. A. Cheney, jr. *map Eng & Min J* 99:1113-15 Je 26 '15
- Titanium and titaniferous ores. P. H. Berggreen. *Sibley J* 29:227-30 Ap '15
- See also Iron mines and mining; Pyrite

Iron oxide

- Emissivity of metals and oxides; iron oxide. G. K. Burgess and P. D. Foote. *U S Bur Stand Bul* 12:83-9 O 23 '15

Iron works

- Cockerill iron works. *Il Sci Am S* 73:339-90 D 19 '14
- Furnace improvements at plant of Jackson Iron & steel co., Jackson, O. *Il diags Iron Tr R* 56:724-7 Ap 8 '15
- Gas and steam engines and the turbine. J. E. Johnson, jr. *Iron Age* 95:826-9 Mr 18 '15; *Same. Sci Am S* 79:294-5 My 8 '15
- Modern plant for rolling iron: St. Louis screw co. H. C. Estep. *Il diags plans Iron Tr R* 57:82-9+ JI 8 '15
- New iron and steel works construction. *Iron Age* 95:30-2 Ja 7 '15
- New iron mill equipped to assure low costs, with diagram of layout. O. J. Abell. *Il Iron Age* 96:71-7 JI 8 '15
- New Taylor-Wharton plant with diagram of layout. *Il Iron Tr R* 57:794-7+ O 21 '15
- Six etchings of European iron and steel works. J. Pennell. *Iron Tr R* 56:57-64 Ja 7 '15
- Washington iron works, including foundry, machine, boiler and forge shops. F. A. Churchill, jr. *Il Iron Tr R* 55:1043-5+ D 3 '14

See also Forge shops; Foundries

Irons, Electric. See Electric irons

Ironwork

- Iron manufacture by electrolysis. L. Guillet. *Il Iron Age* 94:1390-2 D 17 '14; *Same. Sci Am S* 79:70-1 Ja 30 '15
- Removing iron scale by pickling; theory vs. practice. C. Ehering. *Met & Chem Eng* 13:785-6 N 1 '15

See also Blacksmithing; Forging; Tin plate;

Welding; Wrought iron

Ironwork, Architectural

- Ironwork from Rome and Tuscany. J. S. Scarff. *Il diags Brickb* 24:63-6 Mr '15

See also Sheet metal work, Architectural

Irrigation

- Allowing for irrigable lands not irrigated. P. A. Cooper. *Eng N* 73:405-6 F 25 '15
- Does irrigation pay? F. H. Newell. *Eng Rec* 72:384-5 S 25 '15
- Electricity for irrigation pumping. *Il Elec R & W Elec'n* 66:1022-3 Je 5 '15
- Electricity in agriculture. C. J. Rohrer. *Il Gen Elec R* 18:486-8 Je '15; *Same. Sci Am S* 80:265 O 23 '15
- Improved intake for irrigation water from a silt laden stream. A. L. Harris. *diag Eng & Contr* 42:184-5 Ag 19 '14
- Irrigation with fresh water from the sea. H. J. Moynihan. *Sci Am S* 79:84-5 F 6 '15
- Measuring devices for irrigation water tested at the Davis Field laboratory, University of California. *diags Eng & Contr* 43:248-53 Mr 17 '15
- Method and cost of constructing reinforced concrete drops, Canadian Pacific Ry., irrigation projects. R. S. Stockton. *Il Eng & Contr* 43:345-6 Ap 14 '15

Irrigation—Continued

Outline of data to be obtained for a report on the feasibility of any irrigation project. H. F. Robinson. Eng N 72:1815 D 31 '14
 Outlook for irrigation construction. F. H. Newell. Eng & Contr 44:151-2 Ag 25 '15
 Resolutions of the International Irrigation congress. Eng N 72:1161-2 D 10 '14
 Structural details and construction costs of a small irrigation system. O. M. Goss. diags Eng & Contr 43:347 Ap 14 '15
 Utilizing existing irrigation works to secure useful data. Eng Rec 71:674-5 My 29 '15
 Why drainage of irrigated lands is necessary, and how the problem is handled. D. W. Murphy. Il Eng Rec 72:36-8 Jl 10 '15; Abstract. Eng M 50:464-5 D '15
See also Dams; Drainage; Irrigation canals; Reclamation of land; Reservoirs; Silt

Cost

Cost of electric pumping for irrigation. Elec W 66:58-71 Jl 10 '15; Excerpts. Eng Rec 72:257-8 Ag 28 '15
 Cost of pumping for irrigation. G. E. P. Smith. Eng & Contr 44:148-50 Ag 25 '15
 First cost and cost of operation of irrigation pumping plants. H. D. Hanford. Eng & Contr 43:491-2 Je 2 '15

Alberta

America's greatest irrigation project; Basano dam, southern Alberta. Z. E. Black. Il Sci Am 113:252-3 S 18 '15

California

Concrete headgate, south San Joaquin and Oakdale irrigation district in California. F. C. Scobey. diag Eng & Contr 43:383 Ap 28 '15
 Construction methods and costs Sacramento valley irrigation project. P. A. Welty. maps Eng & Contr 43:564-8 Je 23 '15
 Dominguez central-station irrigation system. C. B. Loomis. plan map Eng N 74:540-1 S 16 '15
 Irrigating the land of little rain. S. M. Kennedy. Il diags Elec W 65:1471-4 Je 5 '15
 Plan for municipal irrigation from the Los Angeles aqueduct. B. A. Heinly. map Eng N 73:344-6 F 13 '15
 Use of water in the Modesto irrigation district. K. A. Heron. Eng N 74:1000-1 N 18 '15

Idaho

Cost of electric pumping for irrigation. Il map Elec W 66:68-71 Jl 10 '15; Excerpts. Eng Rec 72:257-8 Ag 28 '15
 Federal project at Minidoka, Idaho. A. P. Connor. Il plans map Power 41:422-5 Mr 30 '15
 Increase in operating costs due to pumping. Minidoka irrigation project. Eng & Contr 43:248 Ap 14 '15
 Water power and its relation to irrigation in southern Idaho. J. C. Beebe. Il Assn Eng Soc J 54:63-78 F '15

India

British India. diags U S Sp Cons Rep 72:354-69 '15
 Irrigation works of India. H. J. Shepstone. Il Sci Am S 80:164-5 S 11 '15

Italy

Italy and engineering. Sci Am S 80:11 Jl 3 '15

Montana

Valler-Montana irrigation project. K. A. Heron. Il map plans Eng N 73:241-6 F 11 '15

Nebraska

Abandoned irrigation canals and the lesson they teach. Eng & Contr 43:330 Ap 14 '15
 Unused irrigation canals. F. H. Newell. Eng N 73:832 Ap 1 '15

Nevada

Lahontan dam, Truckee-Carson irrigation project, Nevada. D. W. Cole. Il diags map Eng N 73:758-62 Ap 22 '15

New South Wales

Murrumbidgee irrigation project. Il map Engineer 120:321-4 O 1 '15

Pacific coast

Irrigation pumping in the coast states. Il map Elec W 65:1399-1408 My 29 '15

Russia

Two large irrigation projects in Russia. M. Nikolitch. Il map Eng N 74:8-11, 102-4 Jl 1, 15 '15; Abstract. Eng M 50:457-9 D '15

Sudan

Irrigation in the Sudan. Engineer 120:379-80 O 22 '15

Texas

Irrigation by pumping at Del Rio, Texas. A. Potter. Il diags plan Eng & Contr 43:66-71 Ja 27 '15; Same abr. Eng Rec 71:596-8 My 8 '15

Turkey

Irrigation works in Mesopotamia. Engineer 120:339 O 8 '15

United States

Changed reclamation service again. Eng Rec 72:671-2 N 27 '15
 Colorado river can supply Imperial valley's needs. Eng Rec 71:788 Je 19 '15
 Features of engineering in the West. H. F. Stratton. Sibley J 29:223-5 Ap '15
 Progress in irrigation, 1914. F. H. Newell. Eng Rec 71:18-14 Ja 2 '15
 Reservoir sites on the Colorado river. L. C. Hill. map Eng Rec 70:870-1 D 19 '14
 Shall the irrigation settlers be given relief? Eng Rec 72:650-1 N 27 '15

Utah

Provo reservoir company's irrigation project. C. S. Jarvis. Il Eng N 74:394-5 Ag 26 '15

Washington

Irrigation in the Wenatchee valley. A. Gunn. Il Elec W 65:1560-3 Je 12 '15

Irrigation canals

Automatic check gate structure for Turlock irrigation district, California. diags Eng & Contr 43:412 My 5 '15
 Bowl outlets reduce velocities at pipeline ends. Il diag Eng Rec 72:41 Jl 10 '15
 Building concrete drops on irrigation canals in western Canada. R. S. Stockton. Il Concrete Cem 6:336-8 My '15
 Concrete chute drops water 180 feet from canal to reservoir. D. W. Cole. Il diags Eng Rec 71:456-7 Ap 10 '15
 Concrete lining as applied to irrigation canals. S: Fortier. 17 pls U S Agric Bul 126:1-36 '14; Excerpt (Design and structural details). Eng & Contr 43:71-4 Ja 27 '15; Excerpt (Methods and costs of constructing). Eng & Contr 43:130-8 F 10 '15
 Concrete lining for irrigation canals at Burbank, Wash.; abstracts. E. M. Chandler. Eng N 73:772-3 Ap 22 '15; Eng & Contr 43:489-90 Je 2 '15
 Costs of keeping down vegetation on irrigation canal banks by grazing. Eng & Contr 43:347 Ap 14 '15
 Earth fill replaces trestle for irrigation canal. Il diags Eng Rec 71:525-6 Ap 24 '15
 Enlarging an irrigation canal of the Modesto irrigation district, California. K. A. Heron. Il diags Eng N 74:486-7 S 9 '15
 Gate structures for irrigation canals. Eng & Contr 42:185-6 Ag 19 '14
 How to express seepage losses from irrigation canals. S: Fortier. Eng N 73:1128-9 Je 10 '15
 Irrigation weir, measuring rod and discharge card. K. A. Heron. Il diag Eng N 74:257 Ag 5 '15
 Losses in concrete and mortar lined canals. H. D. Newell. Eng Rec 72:21 Jl 3 '15; Same abr. Eng & Contr 44:22 Jl 7 '15
 Methods and costs of lining irrigation canal with Toncan metal. Eng & Contr 43:411-12 My 5 '15
 Plaster lining irrigation canals and laterals, Okanogan project, U. S. reclamation service. C. Casteel. Eng & Contr 43:441-3 My 19 '15
 Prehistoric irrigation canal in New Mexico. S. M. Johnson. Il Eng N 73:561 Mr 25 '15

Irrigation canals—Continued

- Recommendations for values of n for different kinds of irrigation channels. F. C. Scooby. Eng & Contr 44:67-60 J1 '15
- Suggested design of proportional division box for irrigation water. diag Eng & Contr 43: 347-8 Ap 14 '15
- Tour of West discloses best practice in irrigation and power canal design. C. A. Farwell. Eng Rec 71:623-4 My 15 '15
- Transmission losses in Modesto, Cal., irrigation canals. K. A. Heron. Eng N 74:583 S 23 '15
- Transmission losses in unlined irrigation channels. S. Fortier. Eng N 73:1060-3 Je 3 '15

See also Flumes

Isherwood, Benjamin Franklin, 1822-1915

- Sketch. por Power 41:903 Je 29 '15; Eng N 74: 44-5 J1 '15

Isobutane

- Vapor pressures of acetylene, ammonia and isobutane at temperatures below their normal boiling points. G. A. Burrell and I. W. Robertson. Am Chem Soc J 37:2482-6 N '15

Isolated plants. See Electric plants

Isomerism

- Isomeric octacetates of lactose. C. S. Hudson and J. M. Johnson. Am Chem Soc J 37:1270-5 My '15

- On 1-phenyl-4, 5-dihydro-5-oxy-3-triazolylsulfonic acid and 1-phenyl-4, 5-dihydro-5-oxy-3-triazolylmethylsulfone. E. W. Esslinger and S. F. Acree. Am Chem Soc J 37:183-9 Ja '15

- Researches on hydantoin: geometrical isomerism in the hydantoin series. T. B. Johnson and S. E. Hadley. Am Chem Soc J 37:171-7 Ja '15

Isoprene

- Isoprene from β -pinene. A. W. Schorger and R. Sayre. diag J Ind & Eng Chem 7:924-6 N '15

Isotasy

- Isotasy and mountain building. L. de Marchi. Sci Am S 80:198-9 S 25 '15

Itakolumite

- Itakolumite, a flexible stone. Sci Am 112:312 Ap 3 '15

Italy

- Italy and engineering. Sci Am S 80:11 J1 3 '15

Army

- Italy on a war footing. I Sci Am 112:610-11 Je 19 '15

Earthquake, 1915

- Real cause of the Italian disaster. Sci Am 112: 94 Ja 30 '15

Military aeronautics

- Italian military aeroplanes. J: J. Ide. diags Sci Am S 79:301 My 8 '15

Navy

- Italian navy. II Sci Am 112:592-3 Je 12 '15
- Renewing of Italy's navy. Sci Am 112:468 My 22 '15

Social conditions

- Housing reform in Italy. C. Aronovici. Am Inst Arch J 3:89-93 F '15

Ivory, Vegetable. See Vegetable Ivory

J**Jackhamers**

- Mounted jackhamers. II Colliery 35:452 Mr '15

Jacks

- Adjustable jack for emergency service. II Iron Age 95:1289 Je 10 '15

- Hydraulic jack for pinion removal. J. G. Koppel. diags Elec Ry J 45:1039 My 29 '15

- Jacking out sheestpiles with a friction clamp. diag Eng N 73:1181 Je 17 '15

- Large sand jacks work well in lowering 1100-ton span. II Eng Rec 72:304 S 4 '15

- Lifting jack with wide range of action. diags Eng & Contr 43:525 Je 9 '15

- Simplex pole jack. II Elec R & W Elec'n 87: 683 O 9 '15; Elec W 66:827 O 9 '15

- Use and care of lifting jacks. Eng & Contr 43:499-500 Je 2 '15

Jackson, William B.

- President of the Western society of engineers. por Eng & Contr 43:46 Ja 20 '15

Jacksonville, Florida

Water supply

- Water works improvements at Jacksonville. II Eng & Contr 44:178 S 8 '15

Wharves

- Jacksonville municipal docks nearing completion. Eng N 74:1099 D 2 '15

- Novel bulkheads for wharves at Jacksonville. H. D. Mendenhall. diags map Eng N 74:772-4 O 21 '15

Jails. See Prisons**Jamaica, Long Island**

- Architectural design as an aid to real estate promotion: principles of group planning applied to small suburban houses. G. H. Irving. II plans Brickb 23:295-6, pl 191-2 D '14

Jamesonite

- La Sirena, a wonderful deposit of Jamesonite. R. W. Raymond. Eng & Min J 99:9-10 Ja 2 '15

Jamestown, New York**Parks**

- Jamestown's hundred acre lot. S. W. Allen. II Am For 21:567-70 Ap '15

- Jamestown, Westfield & Northwestern railroad Electrification. II map Elec Ry J 45:1110-11 Je 12 '15

Japan**Commerce**

- Is Japan's trade worth while? P. N. Beringer. Am Ind 15:21-2 Mr '15

- Japanese markets for American lumber. F. H. Smith. U S Bur For & Dom Com 94:1-16 '15

Industries and resources

- Forests of Japan. N. B. Eckbo. II Am For 21: 693-711 Je '15

- Hogo coal mine. S. Meguro. II map Colliery 35:575-80, 637-43 Je-J1 '15

- Hydroelectric power from snowcapped Fujiyama. C. Tsukamoto. II diag map Elec W 66:910-13 O 23 '15

- 115,000-volt hydroelectric system in Japan. II diags plan Elec W 65:1599-1606, 1671-8 Je 19-26 '15

Japanese

- Two false notions concerning the Japanese. R. W. Raymond. Eng & Min J 99:871-2 My 15 '15

Japanning

- Crawford sectional ovens in the Ford shops. II Eng M 48:sup2-3 Mr '15

- Electrically heated japanning ovens. C. F. Hirschfeld and W. D. Dygert. II Elec W 66: 930-2 O 23 '15

- Japanning, its origin and development. M. Rosenberg. II Metal Ind n s 13:58-60 F '15; Same. Metal Work 83:292-3 F 19 '15

- Modern acid-dipping, electroplating and japanning plant. H. N. Trumbull. II Gen Elec R 18:1121-8 D '15

- Radio process japs a car in 3 days. II Automobile 32:278-9+ F 11 '15

- Sales arguments for electrically heated japanning ovens. D. Rollins. Elec W 65:43-4 Ja 2 '15

Jefferson, Thomas, 1743-1826

- Thomas Jefferson and the first monument of the classical revival in America. F. Kimball. II Am Inst Arch J 3:370-81, 421-34, 473-81 S-N '15

Jellutong rubber resin. See Gums and resins

Jersey City**Railroads**

- Industrial development railway for Jersey City. map Elec Ry J 45:663 Ap 8 '15

- Reconstruction of the Jersey City terminal yards. II plan Ry Age 58:787-91 Ap 9 '15

Jersey City—Railroads—Continued

Track layout and signals of the Jersey City passenger terminal of the Central R. R. of New Jersey. diags plan Ry R 56:647-50 My 15 '15

Jets

Liquid jets. C. T. Du Rell. Met & Chem Eng 13:714-16 O 15 '15

Jetties

Works for the improvement of navigable estuaries; abstract. L. Luiggi. Eng Rec 72: 637-8 N 20 '15

See also Breakwaters

Jewelry

Dead jewelry stock. O. K. Hillman. Metal Ind n s 13:8 Ja '15

Model jewelry factory; the Traub manufacturing company, Detroit, Mich. C. M. Hoke. Il Metal Ind n s 13:365-8 S '15; Discussion. 13: 425-6 O '15

South American market for jewelry and silverware. U S Sp Cons Rep 70:1-23 '15

Treasure of Lahun; beautiful jewelry ornaments and tools found in a plundered pyramid. W. M. F. Petrie. Il Sci Am S 79:264-5 Ap 24 '15

See also Precious stones

Jiggers. See Chiggers**Jigs**

Armature bearing jig. W. E. Nees. Il Elec Ry J 46:324 Ag 21 '15

Jig and fixture design. diags Mach 21:580-1 Mr '15

Jig and fixture mechanisms. G. M. Meyncke. diags Mach 21:970-4 Ag '15

Jigs and jig making. M. R. Lawrence. Il Engineer 118:688-90 D 18 '14

Providing for up-keep in designing jigs and fixtures. A. A. Dowd. diags Mach 22:12-15 S '15

Special jigs for locomotive repair shops. Il diags Ry Age (Mech ed) 89:409-12 Ag '15

Standard jig fastening. C. C. Anthony. diags Mach 22:31 S '15

Two useful drill jigs. Il Mach 21:278 D '14

Jigs (ore treatment)

Neill jiggling apparatus. diag Eng & Min J 100: 313 Ag 21 '15

Jitney buses

Ammunition in the jitney war. Elec Ry J 45: 634 Mr 27 '15

Cost of bus operation. Il Elec Ry J 45:414-17 F 27 '15

Dangers of the jitney. S. M. Williams. Elec Ry J 46:364 Ag 28 '15

Developments in California and Washington. Elec Ry J 45:266-8 Ja 30 '15

Developments in Los Angeles, in Texas cities, in San Francisco and in Portland. Elec Ry J 45:204 Ja 28 '15

Developments in the jitney bus field. Automobile 32:850-1, 698-4 Ap 8-15 '15

Economics of the jitney bus movement. F. W. Doolittle. Elec Ry J 46:220-4 Ag 7 '15

Economics of the jitney problem from a traction company's viewpoint. C. N. Black. Elec Ry J 46:510-11 S 18 '15

Effect of publicity on the jitney movement in Portland. F. W. Hild. Elec Ry J 46:560-1 S 18 '15

Human element determines success or failure of jitney movement. Automobile 32:666-7 Ap 15 '15

Information summarized from fourteen cities. Elec Ry J 45:648-50 Mr 27 '15

Jitney and the small car. H. S. Cooper. Elec Ry J 46:84-5 Jl 10 '15

Jitney bus competition. J. E. Hewes. Elec Ry J 46:18-19 Jl 8 '15

Jitney bus; cost of operation, etc.; abstracts. C. I. Palm. Elec Ry J 45:795-6 Ap 24 '15; Eng N 73:934-5 My 13 '15

Jitney bus, impossibility of an ultimate economic success. Eng M 49:116-18 Ap '15

Jitney bus in Los Angeles. E. L. Lewis. Elec Ry J 45:757-8 Ap 17 '15

Jitney bus invasion. Eng Rec 71:221 F 20 '15

Jitney bus invasion. J. H. Longfellow. Ry R 56:224-5 F 13 '15

Jitney bus on the wane in Memphis, Tenn. Elec Ry J 46:395 S 4 '15

Jitney bus strong in many Ohio cities. Horseless Age 35:272 F 24 '15

Jitney bus vs. the trolley car. Eng N 73:946-7 My 13 '15

Jitney buses. Ry R 56:155-6 Ja 30 '15

Jitney buses appear in western Canada. Horseless Age 35:242 Mr 10 '15

Jitney convention, Kansas City, May 4-6. Elec Ry J 45:360 My 15 '15

Jitney down East. Elec Ry J 45:861-2 My 1 '15

Jitney figures from two southern cities. Elec Ry J 45:1021-3 My 29 '15

Jitney from the community standpoint. Ry R 56:668-7 My 15 '15

Jitney—its wane and possible influence on urban transportation. Eng Rec 71:513 Ap 24 '15

Jitney movement reaches eastern cities. Automobile 32:434-5 Mr 4 '15

Jitney operation in Dallas, Tex.; number of cars in operation and average earnings per car. Elec Ry J 45:884 My 8 '15

Jitney problem. J. C. Thirlwall. Sci Am S 30: 149-4, 154-5 Ag 28-S 4 '15; Same. Gen Elec R 18:604-14 Jl '15

Jitney problem in Philadelphia. Elec Ry J 45: 1224-5 Je 28 '15

Jitney seen as a picturesque industry defying laws of investment and production. Elec Ry J 46:251-2 Ag 7 '15

Jitney situation. J. H. Wilson. Elec Ry J 45: 421-2 F 27 '15

Jitney statistics at Fort Worth. Elec Ry J 46:54 Jl 10 '15

Jitney vs. light cars. Elec Ry J 45:1206-9 Je 28 '15

Jitney vs. the trolley. F. D. Everett. Elec Ry J 46:151 Jl 24 '15

Jitneys at San Antonio. Elec Ry J 45:1197 Je 28 '15

Jitneys carry 45,000 daily in Kansas City. Automobile 32:346 F 18 '15

National jitney convention to be held in Kansas City in May. Elec Ry J 45:650 Mr 27 '15

New jitney buses: Studebaker, Koehler and Kissel special vehicles of this type. Il Automobile 32:562 Mr 25 '15

Portland company on jitney bus. Elec Ry J 45:396-7 F 20 '15

Railway and jitney nickels; their distribution. Elec Ry J 45:1024 My 29 '15

Report on motor vehicles. Elec Ry J 45:619-24 Mr 27 '15

Rise and decline of the jitney in its birthplace. E. L. Lewis. Il Elec Ry J 46:500-2 S 18 '15

South Bend collects jitney data. Elec Ry J 46:399 S 4 '15

Studebaker jitney bus. Il Horseless Age 35:410 Mr 24 '15

Thirty-nine cities have been invaded. Elec Ry J 45:809-10 F 6 '15

Regulation

Application of established legal principles to the jitney. W. E. Dunn. Elec Ry J 46:503-5 S 18 '15

Buffalo, Portland, El Paso and Tucson have passed ordinances. Elec Ry J 45:774-6 Ap 17 '15

California supreme court upholds San Francisco ordinance ruling—Georgia commission's plan for regulation. Elec Ry J 46:125 Jl 17 '15

Cities and legislatures striving for adequate regulatory measures. Elec Ry J 45:580-2 Mr 13 '15

City and state legislative progress. Elec Ry J 45:908-10 My 8 '15

Commission rulings. Elec Ry J 45:1092-3 Je 5 '15

Developments in the jitney bus field. Automobile 32:739 Ap 22 '15

Digest of jitney ordinances. C. L. King. Elec Ry J 46:314-17 Ag 21 '15

Effective jitney ordinance. Elec Ry J 45:397-8 F 20 '15

Efforts toward regulatory legislation—labor's attitude in Rock Island and Providence. Elec Ry J 45:802-4 Mr 20 '15

First jitney case before New York public service commission. Elec Ry J 46:929-30 O 30 '15

Further action before the public service commission of New York—the Philadelphia injunction suits. Elec Ry J 46:650 S 25 '15

Hearing on bus regulations in Los Angeles—San Diego company outlines its position. Elec Ry J 45:156 Ja 16 '15

Jitney buses—Regulation—Continued

- Houston and Salt Lake City regulatory ordinances passed—San Francisco ordinance introduced. Elec Ry J 46:733-4 Ap 10 '15
- Jitney a public utility. Automobile 32:1053 Je 10 '15
- Jitney as state and city issues. Elec Ry J 46:1057-8 N 20 '15
- Jitney common carrier in Wisconsin. Automobile 33:399 Ag 26 '15
- Jitney conditions in St. Louis—the Fort Worth ordinance sustained—jitney ordinances in Augusta, Birmingham and Providence. Elec Ry J 45:1005-6 My 22 '15
- Jitney jottings. Elec Ry J 46:690, 845, 970 O 2, 16, N 6 '15
- Jitney omnibus legislation; analysis of regulations in eleven cities. A. L. Bostwick. Munic J 38:591-2 Ap 29 '15
- Jitney ordinances recently passed. Elec Ry J 46:207 JI 31 '15
- Jitneys regulated. Automobile 32:963-4 My 27 '15
- Letter from New York commission to mayors and district attorneys on jitney status. Elec Ry J 46:781-2 O 9 '15
- Los Angeles jitneys declining. Elec Ry J 46:206 JI 31 '15
- Massachusetts bill to regulate jitney bus. Elec Ry J 46:258 Ja 30 '15
- New problem in traffic regulation. F. Reed. Il Munic Eng 48:160-7 Mr '15
- New York and California commissions have jitney regulatory problems before them. Elec Ry J 46:292-3 Ag 14 '15
- New York state bill signed—jitney made a commission issue in Illinois. Elec Ry J 46:1048 My 29 '15
- Ordinance in Newark before mayor; Progress of regulation in other cities. Elec Ry J 46:467-8 S 11 '15
- Ordinances passed in St. Louis and Loganport. Elec Ry J 46:1098 N 27 '15
- Progress of legislation—state and city measures pending. Elec Ry J 45:691-2 Ap 3 '15
- Proposed jitney regulation in Rhode Island. Horseless Age 35:409 Mr 24 '15
- Public service commission and court action in New York on jitney. Elec Ry J 46:377-8 Ag 28 '15
- Public service commission of Maryland prescribes rules for jitney operation. Elec Ry J 45:1226 Je 26 '15
- Public service commission of the District of Columbia decides buses are common carriers. Elec Ry J 46:421-2 S 4 '15
- Railroad commission of California has no jurisdiction over motor bus—first jitney application passed upon by New York commission. Elec Ry J 46:888 O 23 '15
- Regulation for the jitney bus. Elec Ry J 45:374-7 F 20 '15
- Regulation of jitney busses in St. Louis. Munic Eng 48:341-2 Je '15
- Regulatory measures. Elec Ry J 46:82-3 JI 10 '15
- Regulatory ordinances. Elec Ry J 45:1133-5; 46:39-40 Je 12, JI 3 '15
- San Francisco, Atlanta, Fargo, Gadsden, Spokane and Little Rock pass regulatory measures—state bills—the jitney convention. Elec Ry J 45:317-18 Ap 24 '15
- San Francisco jitney men and city authorities in complete accord. Automobile 32:873-4 My 18 '15
- Summary of recent significant developments covering various phases of the problem. Elec Ry J 45:957-8 My 15 '15
- Terms of new Springfield and Portland regulatory ordinances; Georgia jitney ruling. Elec Ry J 45:1182-3 Je 19 '15
- Travels with the jitney. Elec Ry J 46:166-7 JI 24 '15
- Trend of recent legislation. Elec Ry J 45:484-6 Mr 6 '15
- Wisconsin jitney law. Elec Ry J 46:378 Ag 28 '15
- Jobbers**
Winning the co-operation of the jobber. Metal Work 83:38 Ja 1 '15
- Jobwork.** See Typesetting—Jobwork
- Johns Hopkins university**
Gilman hall and Mechanical and electrical engineering building; views and plans. Brickb 24:pl 136-43 O '15

- New home of Johns Hopkins university. J. M. Hammond. Il Arch Rec 37:481-92 Je '15
- New Johns Hopkins buildings dedicated. Power 41:761-2 Je 1 '15
- Joint committee on classification of technical literature**
Organization. Munic J 38:783-4 Je 3 '15; Same cond. Eng Rec 71:696 My 29 '15; Same cond. Elec W 65:1434 My 29 '15
- Joints**
Behavior of riveted joints under stresses: abstracts. J. E. Howard. Int Marine Eng 20:18-19 Ja '15; Power 41:216 F 9 '15
- Cooper universal joint. Il Mach 22:67-8 S '15
- Diagonal joints. T. Grimes; R. D. Irvington. Power 41:485-6 Ap 6 '15
- Flexible leather shaft couplings replace metallic type. diags Automobile 32:272-3 F 11 '15
- Friction losses in the universal joint: abstracts. P. F. Walker and W. J. Malcolmson. Iron Age 94:1488-9 D 24 '14; Am Soc M E J 37:17-20 Ja '15; Automobile 32:378-9 F 25 '15
- Methods of jointing aluminum. Il Mach 21:470-3 F '15
- Two types of joint between walls and bottom of a reservoir. diags Eng N 73:591 Mr 25 '15
- Universal joint efficiency. C. W. Spicer. Horseless Age 35:74 Ja 13 '15
- See also Boilers—Joints; Couplings; Pipe joints; Rail joints
- Journalism**
Science in the daily press. R. A. Gregory. Ilum Engr 8:203-7 My '15
- See also Newspapers; Publicity
- Journals (machinery).** See Bearings
- Juggling.** See Conjuring
- Juniper**
Cypress and juniper trees on the Rocky mountain region. G. B. Sudworth. 26 pls 11 maps U S Agric Bul 207:1-36 '15
- Junkers engines**
Junkers oil engine. F. E. Junge. diags Eng M 48:689-93 F '15
- Jupiter (collier)**
Performance of the electrically propelled collier Jupiter. S. M. Robinson. Eng N 73:993 F 25 '15
- Jute**
Finishing jute twine. diag Textile World 48:431-2 Ja '15

K

- Kalamazoo, Michigan**
Lighting
Kalamazoo municipal plant. T. Wilson. Il plans Power 41:218-24 F 18 '15
- Kalamazoo situation. W. Newbigging. Am Gas Light J 103:38-9 JI 19 '15
- Kaleidoscope**
Photo-kaleidograph. Il Sci Am 112:103 Ja 30 '15
- Photokaleidograph: an apparatus for the production of kaleidoscopic pictures. Il Sci Am S 79:12-13 Ja 2 '15
- Kambara earth**
Kambara earth and its bleaching action on oils. S. Ueno. diags J Ind & Eng Chem 7:596-600 JI '15
- Kansas**
Sanitary affairs
State control of water-supply and sewerage in Kansas. Eng N 73:209 F 4 '15
- Kansas City, Kansas**
Bridges
Design features of the East Kansas avenue bridge over the Kansas river at Kansas City. diags Eng & Contr 43:496-9 Je 2 '15
- Public works**
Municipal water and light plant of Kansas City. P. W. Morgan. Il Munic Eng 48:284-5 My '15

Kansas City, Missouri

Bridges

- Construction of the Twelfth street trafficway viaduct. E. H. Howard. diag. plan Eng & Contr 44:328-32 O 27 '15
 Half-mile concrete viaduct provides double-deck trafficway in Kansas City. H. H. Fox. 11 diag. Eng Rec 71:164-6 F 6 '15
 Methods and equipment used in erecting girder spans of Pennsylvania avenue viaduct, Kansas City, W. F. Wynne. 11 plan Eng & Contr 43:539-40 Je 16 '15
 New double-deck bridge over the Missouri river at Kansas City. diag. map Ry Age 59:284 Ag 13 '15
 Twelfth street double-deck viaduct at Kansas City. 11 diag. Eng N 73:10-15 Ja 7 '15

Railroads

- Kansas City terminal power plant. 11 Elec W 65:1468-70 Je 5 '15
 Union passenger station. 11 Arch & Bldg 47:226-9+ Je '15
 Viaduct construction on the Kansas City terminal. A. R. Eltzen. 11 diag Ry Age 58:397-400 Mr 5 '15
 Kansas City railway & light company
 Kansas City supplemental plan. Elec Ry J 46:1064-5 N 20 '15
 Kansas City Southern railway
 Financial statistics. map Ry Age 59:724 O 22 '15
 Kansas gas, water, electric light & street railway association
 18th annual convention, Topeka, Oct. 21. Elec R & W Elec'n 67:809 O 30 '15
 Kaolin
 Kaolin in the treatment of bacteria carriers. Sci Am S 80:151 S 4 '15
 Origin of kaolin. W. Lindgren. Econ Geol 10:89-93 Ja '15
 White-burning clays of the southern Appalachian states. J. H. Watkins. 11 map Am Inst Min E Bul 98:391-411 F '15; Abstract. Met & Chem Eng 13:179-80 Mr '15
 Katathermometers
 Measure of comfort in factories. J. A. Seager. 11 Heat & Ven 12:24-7 S '15
 Kathode rays. See Cathode rays
 Kavala
 Kavala, the debatable land. Sci Am S 80:312-13 N 13 '15
 Keefer, Thomas C.
 Late Thomas C. Keefer and the plans for the Victoria bridge at Montreal. Eng N 73:179-80 Ja 28 '15
 Kelp
 Business aspect of the kelp proposition. F. P. Dewey. Sci Am S 79:71 Ja 30 '15
 Destructive distillation of Pacific coast kelps. D. R. Hoagland. J Ind & Eng Chem 7:873-4 Ag '15
 Pacific kelp beds. Sci Am 112:457 My 15 '15
 Scottish kelp industry. Met & Chem Eng 13:443 Jl '15
 Kelvin, William Thomson, 1st baron, 1824-1907
 Lord Kelvin's work on gyrostatics; with discussion. A. Gray. 11 Inst E E J 53:277-307 F 15 '15
 Kenotron
 New device for rectifying high tension alternating currents. S. Dushman. diag. Gen Elec R 18:156-67 Mr '15; Abstract. Elec W 65:559-60 Mr 13 '15
 Pure electron discharge and its applications in radio telegraphy and telephony. I. Langmuir. diag. Gen Elec R 18:332-4 My '15
 Kensico dam
 Architecture of Kensico dam. A. D. Flinn. 11 diag Eng N 74:433-6 S 2 '15
 Electrically operated contractor's plant for building Kensico dam. A. W. Carroll. 11 Eng Rec 71:18-20 Ja 2 '15
 Kensico dam construction in 1914. W. F. Smith. 11 plan Eng N 73:966-8 My 20 '15
 Thermophones in Kensico dam. W. F. Smith. diag. Eng N 72:1173 D 10 '14
 Yardage record at Kensico dam due, in part, to operation of mixers. G. T. Seabury. Eng Rec 71:199 F 13 '15

Kentucky

Industries and resources

- Advantages of the western Kentucky field. F. V. Ruckman. Colliery 35:488-9 Ap '15
 Oil and gas possibilities of Kentucky. F. J. Fohs. map Am Inst Min E Bul 99:321-8 Mr '15
 Kentucky mining institute
 Winter meeting in Louisville, Dec. 4-5, 1914. Colliery 35:328-30 Ja '15
 Keokuk, Iowa
 Mitering lock gate at Keokuk presents novel features. B. H. Parsons. 11 diag. Eng Rec 72:344-9 S 18 '15
 Submersible lock gate at Keokuk operated by compressed air. B. H. Parsons. 11 diag. Eng Rec 72:446-50 O 9 '15
 Bridges
 Reconstruction of Mississippi river bridge at Keokuk. diag. Eng N 74:260-2 Ag 5 '15
 Kerosene
 Extinguishing fire with kerosene. Sci Am S 80:115 Ag 21 '15
 Preparation of gasoline and kerosene from heavier hydrocarbons. B. T. Brooks and others. diag. J Ind & Eng Chem 7:180-5 Mr '15
 Kerosene engines. See Gas and oil engines
 Kerosene lamps. See Lamps
 Ketchup
 Determination of formic acid in ketchup. C. A. Peters and L. P. Howard. J Ind & Eng Chem 7:35-7 Ja '15
 Ketones
 Addition compounds of aldehydes and ketones with organic acids. J. Kendall and W. A. Gibbons. Am Chem Soc J 37:149-52 Ja '15
 Method for the separation and identification of certain homologous α -diketones. J. M. Jolin. Am Chem Soc J 37:892-6 Ap '15
 Keyseating machines
 Burr portable shaft keyseater. 11 Mach 21:505-6 F '15; Iron Age 95:185 Ja 21 '15
 Khaki
 Dyeing of military khaki. Textile World 48:424-5 Ja '15
 Kiaochow
 Problem in war names. Sci Am 111:486 D 12 '14
 Kiel
 Kiel; its naval and engineering features. A. W. Metcalfe. diag. Engineer 120:50-2 Jl 16 '15; Same cond. Sci Am S 80:234 O 9 '15
 Kilauea
 Diary of Kilauea. 11 Sci Am S 79:36 Ja 16 '15
 Notes from a volcano laboratory; personal documents in the case of Kilauea and Mauna Loa. T. A. Jaggar, jr. 11 Sci Am S 80:214-17 O 2 '15
 Kilns
 Flue dust sintering plant at Gary, Ind. 11 plan Iron Age 95:1168-70 My 27 '15
 Kilns for lime burning. Sci Am S 80:7 Jl 3 '15
 Norfolk & Western humidity-controlled dry kiln for lumber. W. H. Lewis. 11 plans Ry Age (Mech ed) 89:462-4 S '15; Same. Ry Age 59:431-3 S 2 '15
 Rotary kilns for desulphurization and agglomeration. S. E. Doak. Am Inst Min E Bul 105:2061-6 S '15; Same. Iron Age 98:574-6 S 9 '15; Same. Iron Tr R 57:1178-9+ D 16 '15; Same cond. Eng & Min J 100:601-2 O 9 '15
 Rotary sintering kilns at Gary. H. C. Estep. 11 diag Iron Tr R 56:1020-2 My 20 '15
 Kilowatt
 Relation of the horse-power to the kilowatt. Sci Am S 79:162-3 Mr 13 '15
 Kindergartens
 Downers Grove kindergarten, Downers Grove, Ill.; views. Brickb 24:pl 103-5 Jl '15
 Modern schoolhouse: the kindergarten. 11 plans Brickb 24:8 Ja '15
 Kinematics. See Force and energy
 Kinetic theory of gases. See Gases, Kinetic theory of
 Kitchen cars
 All-steel kitchen car, North-Eastern railway. 11 plan (supp.) Engineer 119:480, 482 My 14 '15

Kitchen cars—Continued

British all-steel kitchen cars. 11 diags Ry Age (Mech ed) 89:178-82 Ap '15

Kitchens

Doing it electrically at West Point. J. A. Randolph. 11 Elec W 86:574-5 S 11 '15

Gas kitchen equipment of the Biltmore hotel. C. F. Herington. 11 plan Am Gas Light J 102:170-2 Mr '15

Illinois chapter discusses kitchen ventilation. Metal Work 83:171 Ja 22 '15

Kitchen ventilation for a modern hotel; equipment of the Biltmore. New York. 11 diags plan Heat & Ven 12:18-18 Ja '15

Large electric kitchen; abstract. K. Perlewitz. diag Elec W 64:1115-16 D 5 '14

See also Kitchen cars

Kjeldahl flask

Modified kjeldahl flask for determining soil nitrogen. H. A. Noyes. 11 Am Chem Soc J 36:2541-2 D '14

Klamath mountains, California

Pocket deposits of the Klamath mountains, California. H. G. Ferguson. 11 maps Econ Geol 10:241-61 Ap '15

Knit goods

Blas knitted fabric. diag Textile World 48:444 Ja '15

Bleaching knit goods. Textile World 48:409 Ja '15

Calculating the cost of knit goods. Textile World 50:218-24 N '15

Canadian knit-goods market and how it is supplied. E. S. Bates. Textile World 49:sup 371-2 My '15

Causes of cloudy work in worsted knit goods. 11 Textile World 49:671-3 S '15

Defects in knit goods. Textile World 48:519-21 F '15

Fancy knit goods for ladies' goods. 11 Textile World 48:233-5, 343-4 N-D '14

Finishing knit underwear. Textile World 49:449-50; 50:103-4 J1, O '15

Flat and balbriggan knit goods. Textile World 49:546-7 Ag '15

Fleece-lined fabric. diag Textile World 48:423 Ja '15

Fleeced lined knit goods. Textile World 48:615-17 Mr '15

Improved knit fabric. 11 Textile World 49:540-1 Ag '15

Mill wrinkles in knit goods. Textile World 48:323-6 D '14

New flat seaming machine for knitted goods. 11 Textile World 48:518-15 F '15

Novel knitted fabric. diags Textile World 48:609-10 Mr '15

Stripes in knit goods. 11 Textile World 50:106-7 O '15

Twisted-net fabric. 11 Textile World 49:645-7 S '15

See also Hosiery

Knitting

Fancy knitting. 11 Textile World 48:611-13 Mr '15

Kinks in knitting. diags Textile World 49:109-11 Ap '15

Knitting silk plated coats. Textile World 49:361 Je '15

Knitting machinery

Circular knitting machine. diags Textile World 48:420-1, 614-15 Ja, Mr '15

Hand knitting machine. diags Textile World 48:351-3 D '14

Improved circular knitting machine. diags Textile World 49:454-6 J1 '15

Improved pearl stitch knitting machine. 11 Textile World 49:891-2 S '15

Knitting machine needle. diags Textile World 48:515-19; 49:105-7 F, Ap '15

Latch opening mechanism for knitting machines. diags Textile World 49:452-3 J1 '15

Needle carrier for knitting machines. diags Textile World 48:416-17 Ja '15

Philadelphia knitting machinery exhibition. 11 Textile World 49:245-270b My '15

Speed of knitting machines on neckwear. Textile World 49:453-4 J1 '15

Tuttle knitting machine. 11 Textile World 48:342 D '14

Knitting mills

Design and construction of the Gantner-Matthern co. knitting mill at San Francisco. E. F. Cykler. 11 diags Concrete Cem 6:273-7 Je '15

Knives

See also Cutlery

Knots and splices

Manila rope fastenings. 11 Eng Rec 70:706 D 26 '14

Tests of splices in galvanized iron wire. T. Croft. 11 Elec R & W Elec'n 67:716-17 O 16 '15

Kongo, Belgian

Economic geology of the Belgian Congo, Central Africa. S. H. Ball and M. K. Shaler. 11 map Econ Geol 9:605-63 O '14; Excerpts. Eng & Min J 99:441, 608-11 Mr 6, Ap 8 '15

Katanga increasing its output. R. Williams. Eng & Min J 100:308 Ag 21 '15

Koppat

New waterproof resistance material. 11 Elec R & W Elec'n 66:402 F 27 '15

Kubisagari

Drop head, a new ailment. L. K. Hirschberg. Sci Am 112:67 Ja 16 '15

Kynuna wells

Kynuna wells—a test case of rock pressure. J. W. Gregory. map Econ Geol 9:768-75 D '14

L**Labels**

Outgrowths of letterpress. G. Sherman. 11 Inland Ptr 54:777-80; 55:42-7 Mr-Apr '15

Package labels. Inland Ptr 56:208a-208h N '15

Labor and capital

New certificate of character for manufacturers. R. G. Valentine. Ind Eng 15:40-3 F '15

Scientific management and the labor problem. R. T. Kent. Ind Eng 14:418-21 N '14

See also Arbitration, Industrial; Boycott; Employees; Employers' associations; Industrial betterment; Labor and laboring classes; Profit sharing; Strikes; Trade unions; Wages; Welfare work in industry

Labor and laboring classes

Art through the emancipation of the workman. R. A. Cram. Am Inst Arch J 3:242-3 Je '15

Daniel Guggenheim's testimony to United States industrial relations commission. Eng & Min J 99:245-7 Ja 30 '15

Influence on architecture of the condition of the worker, by T. S. Atlee. Review by F. L. Ackerman. Am Inst Arch J 2:547-55 D '14

Labor problems in scientific management. Iron Age 94:1369-72 D 10 '14

See also Apprentices; Arbitration, Industrial; Bonus system; Convict labor; Efficiency, Industrial; Employees; Government employees; Hours of labor; Housing problem; Industrial betterment; Industrial education; Labor and capital; Labor exchanges; Labor laws; Miners; Open and closed shop; Profit sharing; Railroads—Employees; Scientific management; Strikes; Trade unions; Unemployed; Wages; Welfare work in industry; Workmen's compensation

Labor camps. See Construction camps

Labor exchanges

Country-wide employment bureau under federal direction. Eng & Contr 43:437 My 19 '15

Department of labor to find workmen for manufacturers. Iron Age 95:223 Ja 21 '15

Proposed National labor bureau. Iron Age 95:253-4 Ja 28 '15

Labor laws

Allen labor law declared unconstitutional. Eng Rec 71:61 Ja 9 '15

See also Factory laws; Foundry laws; Hours of labor; Minimum wage; Mining laws; Picketing; Workmen's compensation

Laboratories

Description of the new building of the Mellon institute. W. A. Hamor. 11 plans J Ind & Eng Chem 7:333-43 Ap '15

Laboratories—Continued

- Laboratory's the thing for the United States army and navy. *Sci Am* 113:90 J1 31 '15
- New laboratory plans of the Massachusetts institute of technology. plans *Eng N* 74:340-1 Ag 19 '15
- Pennsylvania railroad test department. C. D. Young. II plan *Ry Age* (Mech ed) 89:333-7 J1 '15; Same. *Ry Age* 69:6-11 J1 2 '15; Same. *Ry R* 57:2-5, 42-6, 117-18 J1 3-10, 24 '15; Excerpts. *Metal Ind n s* 13:288-9 J1 '15
- See also Moving picture laboratories; Waterworks—Laboratories
- Laboratories, Electric. See Electric laboratories
- Laboratories, Engineering. See Engineering laboratories
- Laboratories, Mining. See Mining laboratories
- Laboratories, Municipal. See Municipal laboratories
- Laboratories, Physical. See Physical laboratories
- Laboratories, Physiological. See Physiological laboratories
- Lac insect
- Curious insect that is the source of lac varnishes. II *Sci Am S* 80:281-2 O 30 '15
- Lace
- Finishing of knit underwear. II *Textile World* 49:541-4 Ag '15
- Improved lace fabric. II *Textile World* 48:315-16 D '14
- Lace curtains
- Finishing Nottingham lace curtains. *Textile World* 49:552-3 Ag '15
- Lackawanna steel company
- Report for 1914. *Iron Tr R* 56:528-9 Mr 11 '15
- Lacolle Junction, Quebec
- Bridges
- Design, construction and detailed costs of the Richelieu river bridge. II diags *Eng & Contr* 42:542-6, 585-9 D 9, 23 '14
- Lacquer
- See also Japanning
- Lactic acid
- Better bread by means of natural lactic acid. A. Wahl. *J Ind & Eng Chem* 7:773-5 S '15
- Lactones
- Esters, as well as the monomolecular β - and γ -lactones, of *d*-mannonic and *d*-gluconic acids; on ortho-bis-*d*-galactonic acid, *d*-galactonic γ -lactone and its mono-hydrate. O. F. Hedenburg. *Am Chem Soc J* 37:345-72 F '15
- Lactose octacetate
- Isomeric octacetates of lactose. C. S. Hudson and J. M. Johnson. *Am Chem Soc J* 37:1270-5 My '15
- Ladders
- Capital mine steel ladders. H. S. Wiard. *diag Eng & Min J* 99:944-5 My 29 '15
- Safeguarding of ladders, stairs and platforms. II diags *Am Ind* 15:supl-4 F '15
- Wood vs. steel mine ladders. G. E. Collins. *diag Eng & Min J* 100:186 J1 31 '15
- Lagan
- Logging Rasak and Lagan. T. R. Helms. II *Am For* 21:1050-3 N '15
- Lake Erie & Eastern railroad
- Engineering features involved in building the Lake Erie & Eastern R. R. through the city of Youngstown. II plan map *Ry R* 57:132-7 J1 31 '15
- Lake Erie and Ohio river canal
- Proposed Lake Erie and Ohio river canal; with discussion. G. F. Stickney. map *Eng Soc W Pa* 31:285-33 My '15
- Lake Shore & Michigan Southern railway
- Annual report for 1914. *Ry Age* 58:724-6 Mr 26 '15
- New York Central and the Lake Shore: revenue for 1914. *Ry Age* 58:683-5 Mr 26 '15
- Lake Superior mining institute
- 20th annual meeting. *Eng & Min J* 100:446-7 S 11 '15
- 20th annual meeting. *Iron Tr R* 57:542-5 S 16 '15
- 20th annual meeting, Sept. 6-9. *Iron Age* 96: 638-7 S 16 '15

Lakeland, Florida

- Politics and government
- Commission government and an engineer manager for Lakeland. H. D. Mendenhall. *Munic Eng* 48:249-51 Ap '15
- Year of commission-manager government at Lakeland, Fla. D. F. McLeod. *Eng N* 72:1118 D 3 '14
- Lakeside press
- Training the apprentice. H. Hillman. II *Inland* Ptr 55:820-2 S '15
- Lambert
- Units of brightness. J. R. Cravath. *Elec W* 66:60-1 J1 10 '15
- Lamme, Benjamin G.
- Sketch. por *Eng M* 50:207 N '15
- Lamp posts
- How concrete lamp-posts are made for Lincoln park, Chicago. G. T. Donoghue. II *diag Eng N* 74:989 N 18 '15
- Shock-absorbing cast iron lamp post. II diags *Ry Age* 58:464 Mr 12 '15
- See also Street lighting fixtures
- Lamps
- Explosion of kerosene lamps. *Sci Am S* 79:92 F 6 '15
- Grading and marking of lamps. *Illum Engr* 8: 149-51, 162 Ap '15
- Making lamps for Christmas presents. W. Neubecker. II diags *Metal Work* 82:770-1 D 11 '14
- Measurements for the household. diags *U S Bur Stand Circ* 55:68-81 '15
- Tools for making lamp wick-tubes and burner caps. R. Toeplitz. II diags *Mach* 21:1002-3 Ag '15
- See also Electric lamps; Gas lamps; Headlights; Reflectors; Safety lamps; Searchlights
- Lampyridae
- Experiments on the nature of the photogenic processes in the lampyridae. F. A. McDermott. *Am Chem Soc J* 37:401-4 F '15
- Land
- When is land used for common carrier purposes? *Eng Rec* 71:424 Ap 3 '15
- See also Clearing of land; Coal lands; Mineral lands; Railroad land; Real estate; Reclamation of land; Surveying
- Land clearing. See Clearing of land
- Land grants
- State and public grants. J. W. Thompson. *U S Bur Mines Bul* 94:pt 2, 1239-1307 '15
- Land laws
- United States mining statutes annotated; settlers' relief acts. J. W. Thompson. *U S Bur Mines Bul* 94:pt 2, 1215-34 '15
- Landlord and tenant
- Damage to stock from lenky rented building. H. J. Buckley. *Metal Work* 83:399 Mr 12 '15
- Landscape gardening
- Principles of landscape forestry. W. Miller. II *Am For* 21:869-76 O '15
- Recent aspects of garden design. H. D. Eberlein. II *Arch Rec* 37:300-19 Ap '15
- Landslides
- Extensive earth slippage shuts down cement plant. II plan *Eng N* 74:330-2 Ag 12 '15
- Landslide on the Kanawha & Michigan Ry. II *Eng N* 73:747 Ap 15 '15
- Sinking land wrecks cement company's power plant. II *Eng Rec* 72:179-80 Ag 7 '15
- Stopping a landslide at Mount Vernon. N. H. Darton. II *Eng N* 73:369-70 F 25 '15
- Water-soaked bed of blue clay caused landslide at cement plant near Hudson. N. Y. D. H. Newland. map *Eng Rec* 72:253-4 Ag 28 '15
- See also Earthwork—Slides; Panama canal—Slides
- Langmuir, Irving
- William H. Nichols medal award. por *J Ind & Eng Chem* 7:348-9 Ap '15
- Language. See English language; Phonetics; Punctuation

Langwies, Switzerland

Bridges

Design and construction of the Langwies viaduct—Chur-Arosa R. R. A. M. Wolfe. *II* *diags* Concrete Cem 6:239-45 My '15

Lanterns, Electric. See Electric lanterns

Lap windings. See Armatures

Lapping. See Grinding and polishing

Larch

Manufacture of ethyl alcohol from wood waste; western larch as a raw material. F. W. Kressmann. *J Ind & Eng Chem* 7:922-3 N '15

Lard

Cooking fats in South America. *U S Sp Cons Rep* 87:1-15 '15

Lassen Peak

Mt. Lassen eruption. R: H. Boerker. *II* *Am* For 21:51-5 Ja '15

Volcanic activity of Mt. Lassen. T: H. Means. *II* *Eng N* 73:1210-11 Je 24 '15

Lathes

Converting an engine lathe into a semi-automatic machine. *II* *diags* Mach 21:534-5 Mr '15

Double spindle polishing lathes. *II* *Metal Ind n* 13:432 O '15

Driving wheel lathe. *II* *Ry Age* (Mech ed) 89: 371-2 Jl '15

Engine lathe for heavy reduction work. *II* *Iron Tr R* 57:268-9 Ag 5 '15

Engine lathe for machining projectiles. *II* *Iron Tr R* 57:5 Jl 1 '15

Fairbanks-Morse manufacturing lathe. *II* *Mach* 21:1028-4 Ag '15

14-in. heavy automatic shrapnel lathe. *II* *Iron Age* 95:454 F 25 '15

Gear guard for lathes. S. K. Eastwood. *diag* *Iron Age* 95:948 Ap 29 '15

Harding precision lathe with quick change of swing. *II* *Mach* 21:322-4 D '14

Heavy single operation shell lathe. *II* *Iron Age* 95:82 Jl 5 '15

High-speed turret lathe. *II* *diags* plate (supp) *Engineer* 120:184-5 Ag 20 '15

Lathe for plain turning. *II* *Iron Tr R* 57:264 Ag 5 '15

Mammoth driving wheel lathe. *II* *Sci Am S* 80: 129 Ag 28 '15

Motor-driven gun boring lathe. *II* *Iron Age* 94: 1486 D 31 '14

Niles-Bement-Pond projectile lathes. *II* *Mach* 21:926-8 Jl 15 '15

100-in. driving wheel lathe. *II* *Iron Age* 95: 1004-5 My 6 '15

Redesigned 24-in. turret lathe. *II* *Iron Age* 96: 809 Ag 5 '15

Shell-case turning lathe with pneumatically-operated clutch. *II* *Sci Am* 113:472 N 27 '15

Shell turning and manufacturing lathes. *II* *Iron Age* 96:299 Ag 5 '15

Shell work engine lathes. *II* *Iron Age* 95:1394-5 Je 24 '15

Single-purpose chucking turret lathe brought out by the Cleveland crane & engineering company, Wickliffe, Ohio. *II* *Iron Age* 96:872 O 14 '15

Single-purpose lathe for shell work. *II* *Iron Age* 96:810-11 O 7 '15

Special attachments for engine lathes. *II* *Iron Tr R* 57:30-1 Jl 1 '15

32-in. lathe for large shell work. *II* *Iron Age* 96:84 Jl 8 '15

Three lathes designed for shell work. *II* *Iron Tr R* 57:896-7 N 4 '15

Turret indexing mechanisms. A. A. Dowd. *II* *diags* Mach 21:797-801 Je '15

Types of automobile crankshaft lathes. J. C. Spence. Mach 21:569 Mr '15

Types of automobile crankshaft lathes: universal machines for the crankshaft manufacture and special equipments for the automobile builder. W: O. Strauss. *II* *diags* Mach 21:400-3 Ja '15

Universal hollow-hexagon turret lathe. *II* *Iron Age* 95:237 Ja 28 '15; *Ry Age* (Mech ed) 89: 96 F '15

Warner & Swasey turret lathes. *II* *Mach* 21: 511-13 F '15

See also Machine shop practice; Machine tools

Latin America

Commerce

Existing obstacles to the extension of our trade with Central and South America. M. Coster. *Elec W* 55:1158-9 My 8 '15

Export trade and how to get it. G. F. Bagge-Féron. *Elec R & W Elec'n* 66:161-4 Ja 23 '15

Monroe doctrine and Latin-American commerce. L. G. Valentine. *Am Ind* 15:18-19-4 Ap '15

See also South America—Commerce

Latin language

How we got our alphabet. W. Rice. *Inland Ptr* 54:823-4 Mr '15

Launching

Launching calculations. G. H. Barber. *diags* *Int Marine Eng* 19:546-50 D '14

Launching data for a battleship; abstract. J: G. Tawresay. *Int Marine Eng* 20:9-11 Ja '15

Launching of the battleship Arizona. G. H. Barber. *II* *diags* *Int Marine Eng* 20:334-6 Ag '15

Laundry

Amole for laundering woolen goods. *Sci Am* 112:49 Ja 9 '15

Electricity in laundries. *II* *Elec R & W Elec'n* 66:617-20 Ap 3 '15

Heating equipment of modern steam laundry. *II* *plan* *Metal Work* 84:515-16 O 22 '15

Large laundry for handling ship washing; abstract. W: Scholz. *Am Soc M E J* 37:721-2 D '15

Law

See also Arbitration and award; Automobile laws and regulations; Building laws; Commercial law; Contracts; Corporation law; Electric engineering—Laws; Electric railroads—Law; Engineering law; Federal reserve act; Forestry laws and legislation; Foundry laws; Government regulation of industry; Guaranties and sureties; Heating—Laws; Highway law; Inflammable liquids; International law; Labor laws; Legislation; Liens; Maritime law; Mechanics' Liens; Mining laws; Municipal law; Negotiable instruments; Nuisances; Partnership; Patent laws and legislation; Patents; Personal injuries; Picketing; Plumbing laws and regulations; Police; Property; Public service corporations—Law; Railroad law; Sales; Street railroad law; Trademarks; Trusts; Industrial; Water laws; Water rights; Waterworks—Law; Workmen's compensation

Terminology

Glossary of German and French legal terms. A. J. Wolfe and E. M. Borchard. *U S Bur*

For & Dom Com 97:107-27 '15

Lawyers. See Patent lawyers

Leaching. See Hydrometallurgy

Lead, South Dakota

Social improvement at Lead. *Eng & Min J* 100: 798-9 N 13 '15

Lead

Atomic weights of lead. *Sci Am* 111:469 D 5 '14

Contributions of the chemist to the lead industry. G. W. Thompson. *J Ind & Eng Chem* 7:987-8 N '15

Cost of producing lead. *Eng & Min J* 98:1073-4 D 19 '14

Electrolytic assay of lead. E. A. Lewis. *Metal Ind n* 13:463 N '15

Electrolytic lead deposits. F. C. Mathers and A. McKinney. *Met & Chem Eng* 13:338 My '15

Revision of the atomic weight of lead: the analysis of lead bromide. G. P. Baxter and T. Thorvaldson. *Am Chem Soc J* 37:1020-7 My '15

Revision of the atomic weight of lead: the analysis of lead bromide and chloride. G. P. Baxter and F. L. Grover. *II* *Am Chem Soc J* 37:1027-61 My '15

Use of hydrofluoric acid in the separation of copper and lead from tin and antimony by means of the electric current. L. W. McCay. *Am Chem Soc J* 36:2375-81 N '14

See also Jamesonite; Lead metallurgy; Lead mines and mining; Plumbing

Lead acetate

Equilibrium in the system; lead acetate, lead oxide, and water, at 25° C. R. F. Jackson. *Am Chem Soc J* 36:2846-57 N '14; Same. *U S Bur Stand Bul* 11:331-45 My 10 '15

Lead acetate test for hydrogen sulphide in gas. R. S. McBride and J. D. Edwards. *diags pls U S Bur Stand Tech Pa* 41:1-46 '14

Lead arsenates

Arsenates of lead. H. V. Tartar and R. H. Robinson. *Am Chem Soc J* 36:1843-53 S '14

Valuation of commercial arsenate of lead. R. H. Robinson and H. V. Tartar. *J Ind & Eng Chem* 7:499-502 Je '15

Lead borers

Bugs bore into leaded cables. *II Eng N* 74:1006 N 18 '15

Lead bromide

Revision of the atomic weight of lead: the analysis of lead bromide. G. P. Baxter and T. Thorvaldson. *Am Chem Soc J* 37:1020-7 My '15

Revision of the atomic weight of lead: the analysis of lead bromide and chloride. G. P. Baxter and F. L. Grover. *Am Chem Soc J* 37:1027-47 My '15

Lead chloride

Revision of the atomic weight of lead: the analysis of lead bromide and chloride. G. P. Baxter and F. L. Grover. *Am Chem Soc J* 37:1047-61 My '15

Lead hydrogen arsenate

Equilibrium in the system disodium hydrogen arsenate, lead nitrate, and water at 25° C. B. B. Curry and T. O. Smith. *Am Chem Soc J* 37:1685-8 J1 '15

Lead industry and trade

Lead and zinc movement. *Eng & Min J* 100:397 S 4 '15

Lead statistics. *Eng & Min J* 99:57-61 Ja 9 '15

Lead metallurgy

Advantages of high-lime slags in the smelting of lead ores. S. E. Bretherton. *Am Inst Min E Bul* 104:1595-9 Ag '15; Abstract. *Met & Chem Eng* 13:768-7 O 15 '15; Discussion. 108:2479-81 D '15

Effect of Zn₂As₂ upon the desilverization of lead. F. C. Newton. *Am Inst Min E Bul* 98:473-7 F '15; Same cond. *Met & Chem Eng* 13:181 Mr '15; Discussion. *Am Inst Min E Bul* 101:1170-3 My '15

Lead smelting at El Paso. H. F. Easter. *Am Inst Min E Bul* 104:1493-1506 Ag '15; Excerpts. *Eng & Min J* 100:356-7 Ag 28 '15; Abstract. *Met & Chem Eng* 13:814 N 1 '15

Metallurgy of lead in 1914. H. O. Hofman. *Eng & Min J* 99:89-91 Ja 9 '15

New mill of the Daly West mining co., Park City, Utah. L. O. Howard. *II plan Met & Chem Eng* 13:597-602 S 15 '15

Newman hearth. W. E. Newman. *II Am Inst Min E Bul* 106:2139-45 O '15; Same. *Eng & Min J* 100:628-30 O 16 '15; Excerpts. *Met & Chem Eng* 13:974 D 15 '15

Smelting and refining of lead. H. O. Hofman. *Met & Chem Eng* 13:737-8 O 15 '15

Lead mines and mining**Law**

United States mining statutes annotated. J. W. Thompson. *U S Bur Mines Bul* 94:pt 2, 1039-42 '15

Burma

Bawdwin mines of the Burma corporation. *II map plan Eng & Min J* 99:177-80 Ja 23 '15

Idaho

New developments in the Coeur d'Alene, Idaho. H. I. Ellis. *II Eng & Min J* 100:337-40 Ag 28 '15

Missouri

Southeastern Missouri lead district in 1914. H. A. Wheeler. *Eng & Min J* 99:80-1 Ja 9 '15

Lead ores

Occurrence of silver in argentiferous galena ores. A. E. Nissen and S. L. Hoyt. *pls Econ Geol* 10:172-9 F '15

See also Jamesonite; Lead metallurgy; Lead mines and mining

Lead plating

Preparation and operation of all lead plating baths. F. C. Mathers. *Metal Ind n s* 13:184-5 My '15

Lead poisoning

Is the danger from lead poison among operators exaggerated? *Inland Ptr* 55:515 J1 '15

Lead poisoning in manufacture of storage batteries: abstracts. A. Hamilton. *Horseless Age* 35:480 Ap 7 '15; *Elec R & W Elec'n* 66:1056 Je 5 '15; *Eng M* 49:442 Je '15

Lead-poisoning symptoms. W. A. Evans. *Inland Ptr* 56:203 N '15

Lead wool

Lead wool as jointing material; abstracts. C. E. Reinicker. *II Am Gas Light J* 102:242-6 Ap 19 '15; *Eng & Contr* 48:520-2 Je 9 '15

Leadership

Deficiency in personality responsible for engineer's failure to receive recognition. G. F. Swain. *Eng Rec* 71:261-2 F 27 '15

Leadite

Experiences with leadite for jointing cast iron water mains. H. A. Symonds. *Eng & Contr* 44:247-8 S 29 '15

How to make good joints in cast iron water mains. W. C. Hawley. *Eng & Contr* 44:200-2 S 15 '15; Same abr. *Eng Rec* 72:326 S 11 '15

Least work, Theory of

Arched reinforced-concrete conduits designed by the theory of least work. W. M. Smith. *Eng Rec* 71:643-52 My 22 '15; Discussion. 71:753 Je 12 '15

Leather

Contributions of the chemist to the leather industry. W. H. Teas. *J Ind & Eng Chem* 7:283 Ap '15

Effect of relative humidity on an oak tanned leather belt. W. Bird and F. W. Roys. *II Am Soc M E J* 27:447-9 Ag '15; Same. *Iron Tr R* 56:1315-17 Je 24 '15; Same. *Power* 42:169-71 Ag 3 '15; Summary. *Iron Age* 96:26-7 J1 1 '15; Discussion. *Am Soc M E J* 37:449-51 Ag '15

Manufacture of leather belting. F. H. Small. *Am Soc M E J* 37:879-82 D '15; Same. *Iron Tr R* 57:1174-7+ D 16 '15

Leather trade

British India. *U S Sp Cons Rep* 72:290-6 '15

Legal advertising rates. See Advertising—Rates**Legislation**

Business man and Congress. L. W. Moffett. *Iron Tr R* 55:1229-30 D 31 '14

Business men and public service. P. M. La

Bach. *Ry R* 56:193-4 F 6 '15

Business men and public service. R. Blanken-

burg. *Ry R* 55:775-6 D 26 '14

Rural control of Congress. J. A. Emery. *Am*

Ind 15:14-15 F '15

Tendencies toward inefficiency in legislation.

R. Walker. *Ry Age* 58:220-1 F 5 '15

See also Law

Lehigh Valley railroad

Annual report for the fiscal year ended June 30, 1915. *Ry Age* 59:266-7, 303-6 Ag 13 '15

Lenses

Manufacture of optical glass in America. *Sci*

Am 112:175 F 20 '15

New developments in the projection of light.

L. C. Porter. *II Illum Eng Soc* 10:38-54 no

1 '15

New lens gives clear vision. *Sci Am* 112:101 Ja

30 '15

Leprosy

Concerning leprosy. *Sci Am* 113:208 S 4 '15

Lethbridge, Alberta**Sewerage**

Design, construction and operation of Leth-

bridge sewage treatment works. *plan Eng*

& *Contr* 43:401-3 My 5 '15

Letter writing

See also Commercial correspondence

Letterheads**Specimens**

Letterheads and envelopes. *Inland Ptr* 55:208a-208h My '15

Lettering

Advantages of hand-lettering. A. G. Brenton. *Inland Ptr* 55:753-6 S '15

Levees

- Concrete versus stone revetment, in the Kaw valley levee work. E. D. Murray. *II Concrete Cem* 6:202-4 Ap '15
- East side levee and sanitary district. T. N. Jacob. *II diags map Assn Eng Soc J* 55:1-11 J1 '15
- Experience with cement guns in levee revetment. W. G. Caples. *Eng & Contr* 44:397-8 N 17 '15
- Experimental Mississippi river levees indicate possibility of eliminating seepage. C. O. Sherrill. *II plan Eng Rec* 71:552-4 My 1 '15
- High levees will protect Indianapolis from floods. *II map Eng Rec* 72:560-2 N 6 '15
- Indianapolis flood protection. *II map Eng N* 74:961-5 N 18 '15
- Levee construction on Trinity river, Texas. O. W. Finley. *Eng & Contr* 44:sup29-30 O 6 '15
- Method and cost of levee enlargement with a tower dragline excavator. *II diags Eng & Contr* 43:417-20 My 12 '15; Excerpt. *Eng M* 49:598-9 J1 '15
- Periodical levee slip in Helena, Ark. *II Eng N* 72:1108 D 3 '14
- \$16,000,000 required for Los Angeles county flood protection. *diags Eng Rec* 72:232-3 Ag 21 '15
- Slotted pipe aids placing of hydraulic fill. A. M. Thompson. *II Eng Rec* 71:534 Ap 24 '15

Levels

- Engineer's emergency level. A. P. Connor. *II Power* 42:314 Ag 31 '15

Lever

- Suggestions in mechanisms; some curious geometric properties of articulated levers. S. D. Mott. *Sci Am S* 80:77 J1 '15

Lewes, Vivian B., 1851-1915

- Sketch. *por Illum Eng R* 8:472 N '15

Liberty, New York**Water supply**

- Improving Liberty water supply. H. W. Taylor. *II Munic J* 38:390-1 Mir 25 '15

Liberty bell

- Fatigue and disease of metals. P. Kreuzspointer. *Iron Age* 95:950-1 Ap 29 '15
- Liberty bell and disease of metals. *II Iron Age* 95:391-3 F 18 '15; Same. *Sci Am S* 79:236-7 Ap 10 '15

Libraries

- Library for accounting employees. *Elec Ry J* 46:953 N 6 '15
- Lighting of the Widener memorial library, Harvard university. *II Elec R & W Elec'n* 67:330-2 Ag 21 '15
- Notes on library lighting. A. J. Philip. *diags Illum Eng R* 8:465-71 N '15
- Wider use of public libraries. K. C. Walker. *Elec Ry J* 46:1040 N 20 '15

- See also Classification; Engineering libraries; Library architecture; Library service

Libraries, Engineering. See Engineering libraries**Libraries, Railroad. See Railroad libraries****Library architecture**

- Harry Elkins Widener memorial library, Harvard university, Cambridge, Mass.; views and plans. Brickb 24:pl 106-11 Ag '15
- Morris K. Jesup memorial library, Bar Harbor, Me.; views and plans. Brickb 23:pl 177-9 D '14

- Small town library. *II plans Brickb* 24:9-11 Ja '15

- Widener memorial library, Harvard university. *II Arch & Bldg* 47:295-301 Ag '15

Library buildings. See Library architecture**Library science**

See also Classification

Library service

- Progress of library service. *Sci Am* 112:285 O 2 '15

Liens

- Making water bills a lien on real property. *Eng & Contr* 42:425-6 N 4 '14

Liens, Mechanics'. See Mechanics' liens**Life boats. See Lifeboats****Life preservers**

- Combination traveling-bag and life-preserver. *II Sci Am* 113:276 S 25 '15
- Universal line of life preservers. *II Int Marine Eng* 20:184-5 Ap '15

Life saving

- See also First aid in illness and injury; Lifeboats; Lighthouses; Safety devices

Life saving apparatus

- Emergency marine gangway. *II Sci Am* 112:410 My 1 '15

- See also Lifeboats; Life preservers; Mine rescue work; Safety devices

Lifeboats

- New life-boat. *II Sci Am* 112:491 My 29 '15

See also Davits

Lifting magnets

- Handling materials in manufacturing plants. R. L. Streeter. *II Eng M* 50:238-44 N '15

- Igranic electric company magnet. *II diag Eng'neer* 120:110 J1 30 '15

- Use of lifting magnets. *II diags Engineer* 119:422-4 Ap 30 '15

Light

- Color of illuminants; with discussion. L. A. Jones. *diag Illum Eng Soc* 9:687-709 no 8 '14

- Formation of ozone in the upper atmosphere. J. N. Pring. *Sci Am S* 79:286-7, 303 My 1-8 '15

- Notes on the use of light in cinematograph work. *Illum Eng R* 8:310-14 J1 '15

- Optical properties of diffusing media. *Illum Eng Soc* 10:353-402 no 5 '15

- Photo-electricity; the intimate relations of light and electricity. J. A. Fleming. *Sci Am S* 80:6-7 J1 3 '15

- Photographic value of various illuminants. *Illum Eng R* 8:347 Ag '15

- Searching for a reason for eye fatigue. M. Luckiesh. *Elec W* 66:576-8 S 11 '15

- Sensation-white and color-matching white light. *Elec W* 65:1710 Je 28 '15

- Theory of cold light. W. D. Bancroft. *Illum Eng Soc* 10:289-95 no 4 '15; Same. *Am Gas Light J* 103:27-8 J1 12 '15; Same. *Sci Am S* 80:186-7 S 18 '15

- See also Brightness; Color; Color blindness; Daylight, Artificial; Eye; Glare; Heliotropism; Infra-red rays; Light filters; Light projection; Light signals; Lighthouses; Lighting; Phosphorescence; Photochemistry; Photography; Photometry; Phototherapy; Radiation; Radioactivity; Reflection (light); Reflectors; Spectrum; Spectrum analysis; Ultra-violet rays; X rays

Standards

- New standard light source. L. A. Jones. *Am Gas Light J* 101:251-3 O 19 '14; Same. *Illum Eng Soc* 9:716-27; Discussion. 9:728-33 no 8 '14

- Units of brightness. J. R. Cravath. *Elec W* 66:60-1 J1 10 '15

Light, Audible. See Optophone**Light, Colored**

- Artificial daylight. H. E. Ives. *biblog II J Fr Inst* 177:471-99 My '14; Same. *Sci Am S* 78:396-8, 412-14 D 19-26 '14

- Artificial daylight in practice. M. Luckiesh. *II Elec W* 66:71-3 J1 10 '15; Abstract. *Eng M* 49:918 S '15

- Choice of a group of observers for heterochromatic measurements. H. E. Ives and E. F. Kingsbury. *Illum Eng Soc* 10:203-8 no 3 '15

- Development of three-color illumination. M. R. Pevear. *II Elec W* 65:398-9 F 13 '15

- Experiments with colored absorbing solutions for use in heterochromatic photometry. H. E. Ives and E. F. Kingsbury. *diags Illum Eng Soc* 9:795-813 no 8 '14; 10:253-8 no 3 '15

- Mobile color and stage lighting. B. Jones. *II plan Elec W* 66:245-9, 294-7, 346-9, 407-9, 454-6 J1 31-Ag 28 '15

- Spectacular illuminating effects at the Pan-Pacific exposition. *II Sci Am* 112:180-1 F 20 '15

Light, Physiological effects of

- Light-stroke. *Sci Am S* 79:407 Je 26 '15

Light filters

- Light filters for use in photometry; with discussion. C. E. K. Mees. *Illum Eng Soc* 9: 990-7 no 9 '14
- Mobile color and stage lighting. B. Jones. *Elec W* 66:454-6 Ag 28 '15
- Photometry of gas-filled incandescent lamps; with discussion. C. H. Sharp. *Il Illum Eng Soc* 9:1021-32 no 9 '14
- Use of light filters with the tassin metallographic apparatus. F. H. Getman. *Il diag J Ind & Eng Chem* 7:431 My '15

Light projection

- Illumination of signs and building exteriors by projectors. *Il diag Elec R & W Elec'n* 66: 1008-9 My 29 '15
- Incandescent lamps for projectors. L. C. Porter. *Il Gen Elec R* 18:371-6 My '15
- Lamps for projection purposes; committee report. *Illum Eng Soc* 10:527-30 no 7 '15; Same. *Illum Engr* 8:446-8 N '15
- Method for determining the range of searchlights. A. Blondel. *Illum Engr* 8:85-90, 153-9 F. Ap '15
- Method of billboard lighting that saves cash. *Il Elec W* 66:1201 N 27 '15
- New developments in the projection of light. L. C. Porter. *Il Illum Eng Soc* 10:338-54 no 1 '15
- Projector lighting for the protection of bathing beaches. *Il Elec R & W Elec'n* 67:485 S 11 '15
- Sign and building exterior illumination by projection. K. W. Mackall and L. C. Porter. *Il diags Gen Elec R* 18:282-7 Ap '15
- Unusual lighting effects at night pageant. *Il Elec R & W Elec'n* 67:332-4 Ag 21 '15

Light ships

- Lighthouse illumination. R. Haskell. *Illum Eng Soc* 10:207-18 no 3 '15

Light signals

- Automatic drawbridge signal. *diag Eng Rec* 70: 680 D 19 '14
- Beam-light signals on the Pennsylvania. *Ry Age* 58:61 Ja 8 '15
- Lamp signals for day service on electric railways. *Il Eng N* 72:1260-1 D 24 '14
- Position light signals on the Pennsylvania. R. R. *Il Ry R* 56:487-8 Ap 10 '15
- See also Searchlights

Lighthouse service (United States)

- U. S. lighthouse service. G. R. Putnam. *Il diags Eng N* 73:814-19 Ap 1 '15; Abstract. *Sci Am* 118:157 Ag 21 '15

Lighthouses

- Building a lighthouse on shifting sand. H. J. Shepstone. *Il Sci Am* 112:287-8 Mr 27 '15
- Lighthouse illumination. R. Haskell. *Illum Eng Soc* 10:209-13 no 3 '15

Equipment

- Inspection by automatic devices. E. O. Catford. *Il Engineer* 118:612 D 25 '14

Lighthouses, Concrete

- Concrete superseding wood in lighthouse construction. J. G. McCurdy. *Il Concrete Cem* 6:198 Ap '15

Lighting

- Art and science in home lighting; with discussion. G. W. Cassidy. *Il Illum Eng Soc* 10:55-81 no 1 '15; Abstract. *Elec W* 65:484-6 F 20 '15
- Artificial daylight. H. E. Ives. *bibliog Il J Fr Inst* 177:471-99 My '14; Same. *Sci Am S* 78:396-8, 412-14 D 19-26 '14
- Artificial daylight—its production and use. M. Luckiesh and F. E. Cady. *bibliog Illum Eng Soc* 9:839-64 no 8 '14; Same. *Am Gas Light J* 101:390-1 D 21 '14; Discussion. *Illum Eng Soc* 9:864-72 no 8 '14; Discussion. *Am Gas Light J* 101:391-4 D 21 '14
- Bank lighting. F. L. Godinez. *Il Arch & Bldg* 47:256-7 J1 '15
- Complexion and lighting effects. J. R. Cravath. *Elec W* 65:1228-9 My 15 '15
- Converting night into day; what the inventor has done for oil, gas and electricity in illumination. *Il Sci Am* 112:536-64 Je 6 '15
- Economies of home lighting; facts and figures on various systems, past and present. R. Trautschold. *Sci Am S* 79:198-9 Mr 27 '15
- Effect of illumination on visual acuity. *Illum Engr* 8:385-6 S '15
- Efficiencies of present-day illuminants; abstract. H. E. Ives. *Elec W* 65:1614 Je 19 '15
- Efficiency of the eye under different conditions of lighting; the effect of varying the distribution factors and intensity. C. E. Ferree and G. Rand. *Il Illum Eng Soc* 10:407-47 no 6 '15
- Eye and illumination. H. E. Mahan. *Gen Elec R* 18:268-72 Ap '15
- Factors in illuminating engineering. F. K. Richtmyer. *Sibley J* 30:48-50 N '15
- Ferree test for eye fatigue; with discussion. J. R. Cravath. *Illum Eng Soc* 9:1033-59 no 9 '14
- Further experiments on the efficiency of the eye under different conditions of lighting. C. E. Ferree and G. Rand. *Il plan Illum Eng Soc* 10:448-501 no 6 '15
- Glare in museum galleries; the psychological factor in the lighting problem. B. I. Gilman. *diags Arch Rec* 38:282-80, 362-78 Ag-S '15
- Good and bad in recent lighting development. J. R. Cravath. *Il Elec W* 66:519-20 S 4 '15
- Good light—a safety factor in casting plants. Foundry. *Ag* 43:216-18 Je '15
- Good lighting and its immediate effects from the economic standpoint. V. H. Mackinney and E. Stroud. *Inst E E J* 53:329-33 Je 15 '15; Abstract. *Elec W* 65:1425 My 29 '15
- Good natural light—a safety factor. *Eng M* 49:435-6 Je '15
- Holding up the mirror. F. L. Godinez. *Arch & Bldg* 47:51-2 F '15
- Illuminating engineering in Germany. *Illum Engr* 8:460-1 N '15
- Illuminating engineering in war time; with discussion. L. Gaster. *Illum Engr* 8:13-26 Ja '15
- Illuminating engineering society, 9th annual convention, Washington, D. C., Sept. 20-22. *Elec R & W Elec'n* 67:619-24 O 2 '15
- Illuminating engineering society 9th annual meeting. *Elec R & W Elec'n* 67:574-7 S 25 '15
- Illuminating engineering society: report of the committee on progress. *Illum Eng Soc* 10: 515-61 no 7 '15; Same. *Illum Engr* 8:409-14, 445-50 O-N '15; Same cond. *Am Gas Light J* 103:273-9 N 1 '15
- Illumination and the human eye. *Elec W* 65: 624-5 Mr 6 '15
- Illumination in the law courts. A. S. Osborn. *Illum Engr* 7:554 D '14
- Illumination of Panama-Pacific exposition. G. L. Bayley. *Il Elec W* 65:391-5 F 13 '15
- Illumination systems for good lighting of offices. A. B. Oday and R. E. Harrington. *Il Elec W* 65:814 Mr 27 '15
- Knowns and unknowns in the lighting of small interiors. J. R. Cravath. *bibliog Illum Eng Soc* 10:303-14 no 4 '15; Same. *Am Gas Light J* 103:49-51 J1 26 '15; Abstracts. *Elec R & W Elec'n* 66:815 My 1 '15; *Elec W* 65:1141 My 1 '15
- Light as a factor of efficiency. W. A. D. Evans. *Il Textile World* 48:195-9, 354-7 N-D '14
- Lighting efficiency. F. L. Godinez. *Arch & Bldg* 47:138-9 Ap '15
- Lighting improvements, 1915; tabulation. *Munic Eng* 43:267 Ap '15
- Lighting of rifle ranges. A. P. Trotter and others. *Il diags Illum Engr* 8:251-81 Je '15
- Lighting of rooms through translucent glass ceilings; with discussion. E. J. Edwards. *Il Illum Eng Soc* 9:1011-20 no 9 '14
- Lighting of the Widener memorial library, Harvard university. *Il Elec R & W Elec'n* 67:380-2 Ag 21 '15
- Measurements for the household. *diags U S Bur Stand Circ* 55:68-81 '15
- Notes on library lighting. A. J. Philip. *diags Illum Engr* 8:465-71 N '15
- Ye Old Mitre tavern. *Il Illum Engr* 8:322-3 J1 '15
- Planning of lighting installations. R. F. Pierce. *Il Am Gas Light J* 103:321-2 N 22 '15
- Popular talk on semi-indirect lighting. R. F. Pierce. *Il diags Am Gas Light J* 102:369-72 Je 14 '15
- Present practise in the use of tungsten filament lamps for the lighting of metal working plants; with discussion. A. L. Powell and R. E. Harrington. *Il Illum Eng Soc* 9: 814-88 no 8 '14

Lighting—Continued

- Railway classification yard lighting; with discussion. D. F. Morrison. *Il plans Eng Soc W* Fe 30:641-68 O '14
- Relation of light to the proof of documents; proper illumination of courts necessary to insure justice. A. S. Osborn. *Sci Am S* 78:350-1 O 17 '14; Same. *Illum Eng Soc* 9:998-1008; Discussion. 9:1006-10 no 9 '14
- Relative photographic and visual efficiencies of illuminants. L. A. Jones, M. B. Hodgson and K. Huse. *J Fr Inst* 180:481-7 O '15
- Restaurant lighting. F. L. Godinez. *Il Arch & Bldg* 47:336-8 S '15
- Symposium on illumination. *Am Gas Inst Pro* 9:pt 1, 902-38 '14
- Year's progress in illuminating engineering. *Illum Engr* 8:5-9, 45-50 Ja-F '15
- See also Air shafts; Brightness; Car lighting; Church lighting; Electric lighting; Factories—Lighting; Foundries—Lighting; Gas; Gas lighting; Glare; Lamps; Light projection; Lighthouses; Petroleum; Photometry; Schoolhouses—Lighting; Ships—Lighting; Street lighting; Theaters—Lighting

Bibliography

- Books on illumination. *Illum Eng Soc* 10:222-6 no 3 '15

Cost

- Comparative cost of candle light and electric light. *Elec R & W Elec'n* 66:1190-1 Je 28 '15
- Your lighting bill for 1925. A. W. Deininger. *Sci Am S* 80:187 S 13 '15

Laws and regulations

- Existing requirements regarding lighting in factories, schools, etc., in various countries. *Illum Engr* 8:381-3 S '15
- New British lighting regulations. *Illum Engr* 8:423 O '15
- New legislation. *Illum Eng Soc* 10:557-8 no 7 '15; Same cond. *Am Gas Light J* 103:279 N 1 '15
- Suggested code of lighting for factories, mills and other work places in the United States. *Illum Engr* 8:414-19, 461-5 O-N '15 (to be cont)

Study and teaching

- Illuminating engineering as a branch of technical instruction. C. E. Clewell. *diags Illum Eng Soc* 10:321-37; Discussion. 10:338-52 no 5 '15

Tables, calculations, etc.

- Calculation of illumination; description of method developed to overcome the difficulties encountered with indirect or semi-direct light sources. R. C. Powell. *Elec W* 65:1463-4 Je 5 '15
- Flux method of obtaining average illumination. F. A. Benford, jr. and H. E. Mahan. *Illum Eng Soc* 10:593-603 no 7 '15
- Short cuts in calculations for lighting systems. R. F. Pierce. *Am Gas Light J* 103:289-92 N 8 '15
- Simplification of illumination calculations. A. S. McAllister. *Illum Eng Soc* 10:587-91 no 7 '15

Lighting fixtures

- Development and design of lighting fixtures in relation to architecture, interior decoration, and illumination. F. W. Thorpe. *Il diags Illum Engr* 8:102-19; Discussion. 8:97-9, 120-44 Mr '15
- Eye-sight vs. glaring lights and the fixture. F. L. Godinez. *Arch & Bldg* 46:479-80 D '14
- Lighting fixtures profitable side line. *Il Metal Work* 32:736-7 D 4 '14

See also Electric light fixtures; Street lighting fixtures

Lighting plants, Municipal. See Electric plants, Municipal

Lightning

- Lightning without rain. E. J. D. Cox. *Sci Am* 113:141 Ag 14 '15
- Nature of ball lightning. K. Wolf. *Sci Am S* 80:54-5 JI 24 '15
- Thunderstorm and its phenomena. W. J. Humphreys. *Il J Fr Inst* 178:755-73 D '14
- See also Concrete, Effect of lightning on

Lightning arresters

- Automatic-resistance horn-type lightning arrester. *Il Elec R & W Elec'n* 66:38-9 Ja 2 '15; *Elec W* 65:122 Ja 9 '15
- Ground fittings for lightning arresters. *Il Elec Ry J* 46:114 JI 17 '15
- High voltage arrester for telephone lines. E. P. Peck. *Il Gen Elec R* 18:189-94 Mr '15
- Horn-gap lightning arrester. *Il diag Elec W* 66:151 JI 17 '15
- Lightning arrester for brick plant. A. P. Broadhead. *Il Elec R & W Elec'n* 67:974 N 27 '15
- Lightning-arrester installation. T. Croft. *diags Elec R & W Elec'n* 67:512-16 S 18 '15
- Lightning arresters; abstract. C. C. Garrard. *diag Elec W* 66:1041 N 6 '15
- Modern lightning arresters. C. C. Raitt. *Il diags Power* 40:874-6 D 22 '14
- Protecting lightning grounds. *Elec R & W Elec'n* 67:979 N 27 '15
- Protection and control of industrial electric power. C. P. Steinmetz. *Il Gen Elec R* 18:880-1 O '15
- Protection of railway signal circuits against lightning disturbances. E. K. Shelton. *Gen Elec R* 18:1127-8 D '15
- Universal lightning arrester. *Il diag Elec R & W Elec'n* 67:82-3 JI 10 '15

Lightning conductors

- Lightning and lightning rods. *Sci Am S* 80:160 S 4 '15
- Lightning rods. *Sci Am S* 79:397 Je 19 '15
- Lightning rods for farm buildings. *Bldg Age* 37:46-6 S '15
- Protecting buildings against lightning. G. H. Armstrong. *Il Elec W* 66:402-6 Ag 21 '15; Abstract. *Eng M* 50:462-3 D '15
- Protection of life and property against lightning. O. S. Peters. *J Fr Inst* 180:473-6 O '15
- Smelter stacks and lightning. *Il Eng & Min J* 98:1005-6 D 5 '14

Lightning protection

- Lightning and the automobile. C. L. Johnson. *Sci Am* 111:507 D 19 '14
- Lightning attraction for water and gas pipes. H. W. Spang. *Eng & Contr* 44:340 O 27 '15
- Protection from lightning. *Sci Am* 113:299 O 2 '15
- Report of the committee of A. E. R. A. on lightning protection. *Elec Ry J* 46:746-7 O 9 '15

See also Lightning arresters; Lightning conductors

Lightning rods. See Lightning conductors

Lignite

- Gas explosions in lignite fired boiler plants; abstract. P. M. Grampe. *Am Soc M E J* 37:233 Ap '15
- Gasification of rough lignite; abstract. R. Klostermann. *Am Soc M E J* 37:182 Mr '15

Lime

- Advantages in use of commercially hydrated lime over ordinary slacked lime. E. W. Lazell. *Concrete Cem* 6:139-40 Mr '15
- Agricultural lime. *Sci Am S* 80:112 Ag 14 '15
- Chemical and physical properties of lime. *Sci Am S* 80:388 D 4 '15
- Chemical lime. *Sci Am S* 80:47-8 JI 17 '15
- Definition and classification of lime. *Sci Am S* 80:133 Ag 28 '15
- Electricity in lime manufacture. A. C. Hewitt. *Il Elec R & W Elec'n* 67:181-4 JI 31 '15
- Excess lime method of water purification. *Engineer* 120:128 Ag 6 '15
- Hydrated lime. *Sci Am S* 80:91 Ag 7 '15
- Hydrated lime in road concrete. *Eng N* 73:503 Mr 11 '15
- Hydrated lime in spouted concrete. G. J. Griesenauer. *Concrete Cem* 7:128 N '15
- Kilns for lime burning. *Sci Am S* 80:7 JI 3 '15
- Lime burning. *Sci Am S* 80:67 JI 31 '15
- Lime concrete extensively used in India and Burma. *Eng Rec* 71:797-8 Je 26 '15
- Method for the determination of the immediate lime requirements of soils. W. H. MacIntire. *Il J Ind & Eng Chem* 7:864-7 O '15
- Modern hydrated lime plant. R. K. Meade. *Il diags J Ind & Eng Chem* 7:427-30 My '15
- Newberry rapid lime determination. E. G. Pierce. *J Ind & Eng Chem* 7:258-9 Mr '15

- Lime—Continued**
 Reburning of lime from alkali waste and other forms of precipitated carbonate of lime. R. K. Meade, *diag Met & Chem Eng* 13:289-90 My '15
 Road engineer experiments with hydrated lime. *Eng Rec* 71:798-9 Je 26 '15
 Use of lime hydrates in factory-made concrete units. *Concrete Cem* 7:186-7 N '15
See also Cement
- Lime acetate**
 Hardwood distillation industry in America. E. H. French and J. R. Withrow, *II Met & Chem Eng* 13:80-9 Ja '15; Same, *J Ind & Eng Chem* 7:47-55; Discussion, H. O. Chute, 7:55-6 Ja '15
- Limestone**
 Limestone production and its uses. E. C. Eckel, *Eng & Min J* 98:989 D 5 '14
 Prehistoric irrigation canal in New Mexico. S. M. Johnson, *II Eng N* 73:561 Mr 25 '15
- Lincoln, Paul Martyn, 1870-**
 President Am. Inst. E. E. C. F. Scott, *por Eng N* 73:390-1 F 25 '15
- Lincoln highway**
 Brick pavement on old gravel road foundation for portion of the Lincoln highway. F. A. Churchill, *Eng & Contr* 43:548 Je 16 '15
 Cooperation the keynote of Lincoln highway movement. *Eng Rec* 71:274 F 27 '15
 Lincoln highway. H. V. Magonigle, *Am Inst Arch J* 8:168 Ap '15
 Tree planting along the Lincoln highway. G. R. Nevitt, *Am For* 21:928-9 S '15
 Work of the Lincoln highway committee. E. C. Jensen, *Am Inst Arch J* 2:559-60 D '14
- Lincoln memorial**
 Marble columns of the Lincoln memorial. J. P. Kirsch, *Sci Am* 112:267 Mr 20 '15
- Linon**
See also Hemp; Textile industry and fabrics
- Lintotype**
 Lintotype slugs used as plate base. *II Inland Ptr* 56:400 D '15
 Machine composition. J. S. Thompson. *See monthly numbers of Inland printer*
 Measurement of lintotype matter. E. M. Keating, *Inland Ptr* 55:319 S '15
 Modern methods of composing type. *II Sci Am* 80:325-6 N 20 '15
 Seventy years of inventions. *Sci Am* 112:517 Je 5 '15
 Signs of the times in composing-machinery. C. D. Bollinger, *Inland Ptr* 55:184-6 N '15
See also Typesetting machines
- Lintotype operators**
 King of the speed merchants. Holo Pau, Honolulu, *Inland Ptr* 54:636 Ja '15
- Linseed oil**
 Drying properties of linseed oil treated with cobalt, lead and manganese elaeostearates. I.: E. Wise and R. A. Duncan, *J Ind & Eng Chem* 7:202-5 Mr '15
 Iodine number of linseed and petroleum oils. W. H. Smith and J. R. Tuttle, *U S Bur Stand Tech Pa* 87:1-17 '14; Same, *J Ind & Eng Chem* 6:994-8 D '14
 Use of linseed oil to protect concrete from destruction by alkali. L. A. Waterbury; R. A. Hart, *II Concrete Cem* 6:90-3 F '15
- Lipases**
 Studies on enzyme action: the lipase of soy beans. K. G. Falk, *Am Chem Soc J* 37:649-53 Mr '15
- Liquefaction of gases**
 Explosions in air liquefaction plants and their causes; abstract. W. Brankamp, *Am Soc M E J* 87:401-3 Jl '15
See also Liquid air
- Liquid air**
 Electrical conductivity imparted to liquid air by alpha rays. *Sci Am* 87:191 Mr 20 '15
 Experiments on the distillation of liquid air in a magnetic field. R. S. McBride, *Am Chem Soc J* 37:1715-18 Jl '15
 Industrial uses for liquid air. *Eng M* 49:118-21 Ap '15
 Liquid air as an explosive; abstract. M. Przyborski, *Am Soc M E J* 87:341-2 Je '15
- Liquid air in industry.** *J Ind & Eng Chem* 7:255 Mr '15
 Manufacture of liquid air. *diags Sci Am S* 80:204-5 S 25 '15
- Liquid crystals**
 Optical anisotropy of liquid crystals. B. O. Lehmann, *Sci Am S* 79:80 Ja 30 '15
 Sudden changes in the form of liquid crystals. O. Lehmann, *II Sci Am S* 79:43 Ja 16 '15
 Surface tension due to intermolecular attraction. O. Lehmann, *diags Sci Am S* 80:341 N 27 '15
- Liquid fuel**
See also Alcohol as fuel; Automobile engines—Fuel; Gas and oil engines—Fuel; Gasoline; Petroleum as fuel
- Liquid meters**
 Improved Lea v-notch meter integrator. *II Iron Age* 96:973 O 23 '15
 Laboratory for investigating and testing liquid flow meters of large capacity; abstracts. W. S. Giele, *II diag Am Soc M E J* 37:165-9 Mr '15; Power 41:69-71 Ja 12 '15; Discussion, *Am Soc M E J* 37:169-70 Mr '15
 Shapley solution meter. C. Shapley, *diag Eng & Min J* 100:885 N 27 '15
- Liquids**
 Drop weight method for the determination of the surface tension of a liquid. J. L. R. Morgan, *Am Chem Soc J* 37:1481-7 Je '15
 Surface tensions of water, methyl, ethyl and isobutyl alcohols, ethyl butyrate, benzene and toluene. T. W. Richards and L. B. Coombs, *II diag Am Chem Soc J* 37:1656-76 Jl '15
See also Boiling points; Capillarity; Fluids; Hydraulics; Hydrodynamics; Liquid air; Solution (chemistry)
- Liquor problem.** *See Prohibition*
- Liquors.** *See Brewing; Wine*
- Lithium**
 Lithium in soils. L. A. Steinkoenig, *J Ind & Eng Chem* 7:426-6 My '15
- Lithography**
 Architectural draughtsmen: Richard Parkes Bonington. H. Winslow, *II Am Inst Arch J* 3:159-67 Ap '15
See also Engraving
- Little Rock, Arkansas**
 Bridges
 Reconstruction of piers of Little Rock Junction bridge across the Arkansas river. C. E. Smith, *diags plan Eng & Contr* 44:85-8, 124-7 Ag 4, 18 '15
- Littoral drift.** *See Erosion*
- Live stock**
 Feeding mine animals. *Eng & Min J* 100:884 N 27 '15
See also Feeding and feeding stuffs; Sheep Transportation
- Hearing on western freight rate advances.** *Ry Age* 58:700-1, 973-4 Mr 26, My 7 '15
See also Swine—Transportation
- Lloyd's**
 Lloyd's annual report. *Int Marine Eng* 19:530-1 D '14
- Load (mechanics)**
 Curves for strength and deflection of very long columns. E. L. Robinson, *Eng N* 73:1108-9 Je 10 '15
 Distribution of vertical soil pressures; tests at Engineering experiment station of Pennsylvania state college. J. A. Moyer, *II Eng Rec* 71:330-2 Mr 13 '15
 Is a part stronger than the whole? R. Fleming, *diags Eng N* 74:1026-7 N 25 '15
 Large brick piers tested at laboratory of Bureau of standards; abstracts. J. H. Griffith and J. G. Bragg, *II Eng Rec* 71:460-1 Ap 10 '15; *Eng N* 74:242-8 Ag 5 '15; *Ind Eng* 15:108 S '15
 Results of some tests of I-beam connections. C. S. Whitney, *diags Eng & Contr* 44:35-7 Jl 14 '15
 Safe eccentric loading of rivets. J. Di Stasio, *Sch Mines Q* 35:213-22 Ap '14; Excerpt, *Eng & Contr* 42:512 D 2 '14
See also Bridges—Load; Strains and stresses

- Load curves. See Electric plants—Load curves
- Load dispatching. See Electric plants—Central stations—Management
- Load factor
Definition of load factor. Power 42:127 JI 27 '15
- Loading and unloading
Cost of loading bricks into a box car by means of a portable belt conveyor. A. C. Haskell. *Eng Eng & Contr* 44:204 S 15 '15
Electrically operated loader. *Il Sci Am* 112: 886+ Ap 24 '15
Italian machine for loading coal tenders. *Il Sci Am* 113:225 S 11 '15
Making records with loading machines. F. N. Loughnan. *Il Ry Age* 58:1443 Je 18 '15
New portable car unloader. *Il Concrete Cem* 5: 270 D '14
Ore unloaders at Philadelphia. *Il Iron Tr R* 56:1009-10 My 20 '15
Portable car unloader for handling sand and gravel. *Il Concrete Cem* 6:232-3 Ap '15
Saving time in loading and unloading. *Il diags* Sci Am 118:452 N 20 '15
Unloading cargoes by portable machines. *Il Int Marine Eng* 20:105-6 Mr '15
Wagon loaders for broken stone. *Il Eng N* 74:176-7 JI 22 '15
See also Conveying machinery; Dumping appliances; Freight handling; Mechanical handling
- Locks (canals and rivers)
Lock gates for Dallas-Celilo canal. *diags plan* Eng Rec 70:814-16 D 5 '14
Mitering lock gate at Keokuk presents novel features. B. H. Parsons. *Il diags Eng Rec* 72:344-5 S 18 '15
One huge single-lift lock at Louisville will guard the entrance to the Portland canal. *Il Plan Eng Rec* 71:704-6 Je 26 '15
Sea water to rise into fresh-water canal. P. Whitham. *Il map Eng N* 74:246-7 Ag 5 '15
Submersible lock gate at Keokuk operated by compressed air. B. H. Parsons. *Il diags Eng Rec* 72:446-50 Q 9 '15
Tests of butterfly valves result in modified design. *diag Eng Rec* 72:419 O 2 '15
200,000 yards of concrete placed for \$800,000 in Lake Washington canal lock. *Il diag plan* map Eng Rec 72:141-3 JI 31 '15
- Locomotives
High economy of locomobile. W. Turnwald. Power 42:242 Ag 17 '15
Lanz locomobiles and the war. *Il Power* 42:232-3 Ag 17 '15
Locomobile driven by suction producer gas; abstract. Gwosdz. *diags Am Soc M E J* 37: 718-15 D '15
Self-contained power plant; Buckeye engine company, Salem, Ohio. *Il diag Iron Age* 95: 1056-7 My 13 '15
Superheated steam unit; some remarkably economical German engines. W. H. Miller. *Il Sci Am* 112:290-1+ Mr 27 '15
Two American-built locomobile power plants. *Il diags Elec W* 65:407-11 F 13 '15
- Locomotive boilers
Boiler design in respect to heating surface: calculations based on cylinder horsepower requirements. F. J. Cole. Ry Age 57:1079-81 D 11 '14; Same cond. Ry Age (Mech ed) 89: 5-6 Ja '15
Boiler shop methods. *diags Ry Age (Mech ed)* 88:637 D '14
Boiler washing and filling system for small roundhouses. W. Wells. *plan Ry Age (Mech ed)* 89:251-2 My '15
Circulating system for locomotive boilers. *Il Ry Age (Mech ed)* 88:644-5 D '14
Federal government boiler inspection report. Ry Age 57:1196-7 D 25 '14
Locomotive boiler design and mechanical stokers. Engineer 120:156 Ag 13 '15
Master boiler makers' association 9th annual convention. Ry R 56:731-4 My 29 '15
Master boiler makers' convention. Ry Age (Mech ed) 89:309-17 Je '15
Master boiler makers' 9th annual convention. Ry Age 58:1128, 1165-9 My 28-Je 4 '15
Patching boilers according to law. G. G. Lynch. *diags Ry Age (Mech ed)* 88:634-6 D '14
Repairing locomotive boiler tubes. N. H. Ahlholm. *Il plans Ry Age (Mech ed)* 89:33-5 F '15
- Report of the chief inspector of locomotive boilers. F. McManamy. Ry R 56:19-20 Ja 2 '15
Results of the locomotive boiler inspection law. F. McManamy. Ry Age 58:621-3 Mr 19 '15; Same cond. Ry Age (Mech ed) 89:190-1 Ap '15; Same cond. Power 41:898-900 Je 29 '15
System of water circulation for locomotive boilers. *Il Ry Age* 57:1131-2 D 18 '14
Treatment of water for locomotive use. W. A. Fownall. *Am Water Works Assn J* 2:434-41 Je '15; Same. Ry R 56:470-2 Ap 3 '15
See also Locomotive fireboxes
- Locomotive brakes
Failures of breakdowns of locomotives. R. Weatherburn. *diags Engineer* 118:575-6 D 18 '14
- Locomotive coaling stations. See Coaling stations
- Locomotive engineers
Arbitration award in engineers' wage controversy; text. Ry Age 58:962-5 My 7 '15
Arbitration of western engineers' and firemen's demands. Ry Age 57:1043-4, 1084-5, 1123-4; 58:97-8, 125-7, 198-200, 232-4, 264-6, 307-10, 363-5, 409-11, 448, 751-2 D 4-18 '14, Ja 15-Mr 12, Ap 2 '15
Award of arbitrators in the western wage controversy. Ry R 56:624-5 My 8 '15
Disturbance over the western arbitration. Ry Age 58:959-60 My 7 '15
Obedience to orders; abstention from liquors. H. W. Williams. Ry Age 57:1088 D 11 '14
Points for the road foreman. W. P. Danforth. Ry Age 57:1130-1 D 18 '14
Testimony in the western wage arbitration. Ry R 58:156-7 Ja 30 '15
Western engineers' and firemen's demands. Ry Age (Mech ed) 89:56-7 F '15
- Locomotive failures. See Locomotives—Failures
- Locomotive fireboxes
Combustion in locomotive fireboxes. J. P. Neff; J. T. Anthony. *diag Ry Age* 58:56-7 Ja 8 '15; Same cond. Ry Age (Mech ed) 89:10-11 Ja '15
Lackawanna locomotive with water tube firebox. *Il diags Ry Age* 58:445-7 Mr 13 '15; Same. Ry Age (Mech ed) 89:222-4 My '15
Removing and replacing fireboxes. Ry Age (Mech ed) 89:316 Je '15
Illegal design of locomotive firebox, Delaware Lackawanna & Western R. R. *Il diag Ry R* 58:311-12 Mr 6 '15
Wrought iron in locomotive fireboxes; abstract. G. Hammer. *Am Soc M E J* 37:344 Je '15
- Locomotive firemen
American fireman in France. W. G. Landon. Ry Age 58:267-8 Ag 13 '15
Arbitration award in engineers' wage controversy; text. Ry Age 58:962-5 My 7 '15
Arbitration of western engineers' and firemen's demands. Ry Age 57:1043-4, 1084-5, 1123-4; 58:97-8, 125-7, 198-200, 232-4, 264-6, 307-10, 363-5, 409-11, 448, 751-2 D 4-18 '14, Ja 15, Mr 12, Ap 2 '15
Award of arbitrators in the western wage controversy. Ry R 56:624-5 My 8 '15
Performance of locomotive firemen. Ry Age (Mech ed) 89:346 JI '15
Recommended practices for the employment and training of firemen; T. E. A. committee report; abstracts. Ry R 57:338-40 S 11 '15; Ry Age 58:473-4 S 10 '15
Training of men for firemen. Ry Age (Mech ed) 89:508-9 O '15
- Locomotive grates
Hulson locomotive grate with large air openings. *Il Ry Age* 59:330-1 Ag 20 '15; Ry Age (Mech ed) 89:431-2 Ag '15
- Locomotive headlights
American railway master mechanics' association committee report. Elec Ry J 45:1116 Je 13 '15
American railway master mechanics' association committee report. Ry R 56:847 Je 19 '15
- Locomotive headlight requirements. E. S. Pearce. *diags Ry Age (Mech ed)* 89:451-3 S '15
- Locomotive headlight; with discussion. J. L. Minick. *Illum Eng Soc* 9:909-36 no 9 '14

- Locomotive shops**
 Boiler shop methods. diags Ry Age (Mech ed) 88:637 D '14
 Boring and facing back end main rod brasses and driving boxes. M. Flanagan. 11 diags Ry Age (Mech ed) 89:239-40 My '15
 Care of lye tanks. J. A. Jesson. diag Ry Age (Mech ed) 89:188 Ap '15
 Chicago & Alton railroad—one large building houses all departments of locomotive repair shops at Bloomington, Illinois. 11 diag plan Eng Rec 71:487-8 Ap 17 '15
 Electric locomotive repair shops. New York, New Haven & Hartford R. R., Van Nest, New York. diag plans Ry R 57:363-5 S 13 '15
 International railway general foremen's 11th annual convention. Ry Age (Mech ed) 89:417-26 Ag '15
 Locomotive repair shops of the Chicago & Alton R. R. at Bloomington, Ill. 11 diag plan Ry R 56:3-6 Ja 2 '15
 Machine tool equipment of the new locomotive repair shops. Chicago & Alton R. R., Bloomington, Ill. plans Ry R 56:79-82 Ja 18 '15
 New engine terminal for the O. W. R. R. & N. co., Spokane, Wash. 11 plans Ry R 57:588-9 N 6 '15
 Piece work and bonus systems in the boiler shop. N. H. Ahlström. Ry Age (Mech ed) 89:240-2 My '15
 Railroad locomotive repair shop organization. H. Gardner. Ry Age 59:697-9 O 15 '15
 Shop efficiency; report of International railway general foremen's association committee. Ry Age (Mech ed) 89:421-3 Ag '15; Same cond. Ry Age 59:156-6 J1 23 '15
 Special jigs for locomotive repair shops. 11 diags Ry Age (Mech ed) 89:409-12 Ag '15
- Locomotive sparks**
 Possibility of fire from locomotive sparks. Ry Age 58:267-8 F 12 '15
- Locomotive steel.** See Locomotives—Manufacture
- Locomotive stokers.** See Stokers, Mechanical
- Locomotive tenders**
 Calibration charts for Vanderbilt tenders. T. Price. Ry Age (Mech ed) 89:568-5 N '15
 Good features of tender tank design. W. R. Hedeman. diags Ry Age (Mech ed) 89:224-5 My '15
 Self-trimming locomotive tender. diag (supp) Engineer 120:280 S 17 '15
 Tender derailments. G. W. Little. Ry Age (Mech ed) 89:58 F '15
- Locomotive terminals**
 Design features of the Lake Shore & Michigan Southern Ry. engine terminal at Air Line Junction, Ohio. diags plan Eng & Contr 43:97-8 F 3 '15
 Finley yard of the Southern railway at North Birmingham, Ala. 11 plans Ry R 57:355-60 S 18 '15
 Improvements at the Englewood locomotive terminal and car repair plant. L. S. & M. S. Ry., Chicago. 11 diags plans Ry R 55:679-83 D 5 '14
 See also Roundhouses
- Locomotive trade**
 American locomotive builders and foreign trade. W. Fawcett. Ry Age 59:643-4 O 8 '15
- Locomotive trucks**
 Length of radius bar for two-wheel trucks. L. R. Pomeroy. Ry Age (Mech ed) 89:290-1 Je '15
- Locomotives**
 American railway master mechanics' association 48th annual convention. Ry R 56:806-9, 847-53 Je 12-19 '15
 Baldwin locomotives at the Panama Pacific exhibition. 11 Engineer 119:453-3 My 7 '15
 British-built four-cylinder express locomotive for the Sao Paulo Ry., Brazil. F. C. Coleman. 11 Ry R 56:47-8 Ja 9 '15
 British locomotive reconstruction. F. C. Coleman. 11 Ry R 56:458-9 Ap 3 '15
 Canadian Pacific mountain type locomotives. W. H. Winterrowd. 11 diags Ry Age 59:362-5 N 5 '15
 Cars and locomotives ordered and built in 1914. Ry Age 58:15-20 Ja 1 '15
 Cars and locomotives ordered in 1914. Ry R 56:36-41 Ja 2 '15
 Combined rack and adhesion locomotive, South Indian railway. F. C. Coleman. 11 Ry R 57:286-7 S 4 '15
 Compound locomotive—Swedish state railways. 11 Engineer 119:429 Ap 30 '15
 Contrast in locomotive practice. H. T. Walker. 11 Sci Am 113:60 J1 17 '15
 Counterbalancing of locomotives. S. G. Thomson. Ry R 57:129-42 J1 81 '15
 Decapod locomotives for the Russian state railways. 11 diag Ry R 57:261-2 Ag 28 '15; Ry Age 59:474-6 S 10 '15
 Dandy Marshall system of four-cylinder locomotive. 11 diag Engineer 120:300-1 S 24 '15
 Developments in steam locomotives. G. R. Henderson. Ry Age 58:897-900 Ap 23 '15
 Double-ender military locomotives. H. T. Walker. 11 Sci Am 113:139 Ag 14 '15
 Eight-wheel switching locomotives for the Lehigh & New England R. R. 11 diags Ry R 57:293-4 S 4 '15
 Erie 2-10-2 type locomotive. 11 diags Ry Age 58:706-8 Mr 26 '15; Same. Ry Age (Mech ed) 89:158-60 Ap '15
 Examples of recent locomotives of the Atlantic, ten-wheel American, Mogul, and switching type arranged in order of total weight. Ry Age (Mech ed) 89:396 Ag '15
 Examples of recent locomotives of the Mallet, Santa Fe and Consolidation types arranged in order of total weight. Ry Age (Mech ed) 89:292 Je '15
 Examples of recent locomotives of the mountain and Pacific and Mikado types arranged in order of total weight. Ry Age (Mech ed) 89:338-9 J1 '15
 Factor of adhesion. E. F. Givin. Ry Age 59:454 S 10 '15
 Factor of adhesion. G. Baxter. Ry Age 59:638 O 8 '15
 Factor of adhesion in steam locomotives. E. F. Givin. Ry Age 58:961 My 7 '15
 Fireless locomotives; abstract. Am Soc M E J 37:344 Je '15
 First 4-8-2 locomotives in Canada. W. H. Winterrowd. 11 diags Ry Age (Mech ed) 89:556-61 N '15
 4-4-4 type locomotive, Philadelphia & Reading Ry. 11 diags Ry R 56:747-52 Je 5 '15
 Front ends, grates and ash pans. Ry Age (Mech ed) 89:281-2 Je '15
 Grand Trunk locomotives for suburban service. 11 diag Ry Age 58:628-9 Mr 19 '15; Same cond. Ry R 56:422-4 Mr 27 '15
 G. E. R. suburban passenger tank engine. 11 Engineer 119:166 F 12 '15
 Heavy 4-8-2 locomotive for South African railways. 11 diags Engineer 118:580-1 D 18 '14
 Large steam locomotives, present and future: possibilities in the use of three cylinders; compounding; effect of trailer trucks on boiler capacity. Ry Age 58:123-4 Ja 22 '15
 Locomotive development in 1914. Ry Age 58:4 Ja 1 '15
 Locomotive front ends, 1853-1913. C. T. Rommel. diags Ry Age (Mech ed) 88:617-20 D '14
 Locomotive of the future. H. T. Walker. 11 Sci Am 113:158 Ag 21 '15
 Locomotives ordered in America for foreign countries. 11 Ry Age 59:1011-13 N 28 '15
 Locomotives recently built for foreign countries. 11 Ry Age 58:1407-10 Je 18 '15
 Magnolia cut-off improvement on the Baltimore and Ohio railroad. A. W. Thompson. 11 Eng Soc W Pa 30:327-35 D '14
 Mikado and Pacific type locomotives for the Nashville, Chattanooga & St. Louis Ry. 11 diags Ry R 56:591-3 My 1 '15; Same. Ry Age 58:976-7 My 7 '15
 Mikado locomotives for the Georgia R. R. 11 diags Ry R 56:551-3 Ap 24 '15
 Mikado versus consolidation locomotives: a study for the purpose of determining the economical distribution of power from a net revenue standpoint. N. D. Ballantine. Ry Age 59:938-5 N 19 '15
 Mineral traffic engine, Barry railway. 11 Engineer 118:531 D 4 '14
 Modernizing locomotives on the Kansas City Southern. 11 Ry Age 58:371-2 F 26 '15
 Motive power transformations, New York Central lines. 11 diags Ry R 56:306-9 Mr 6 '15
 Mountain type locomotives for the Seaboard air line. 11 diags Ry R 58:825-7 Je 19 '15

Locomotives—Continued

Number and types of locomotives on British railways. Engineer 120:108-9 J1 30 '15

Pacific and Mikado type locomotives for the New Orleans & Northeastern. *Il Ry Age* 58:134-5 Ja 22 '15

Pacific type locomotive for the Chicago, Burlington & Quincy R. R. *Il diags Ry Age* 57:170-2 Ag 7 '15; Same. *Ry Age* 59:275-8 Ag 13 '15

Pacific type locomotive: maximum tractive effort of 48,600 lb. *Il diags Ry Age (Mech ed)* 58:614-16 D '14

Pacific type locomotives, Chesapeake & Ohio railway. *Il diags Ry R* 56:708-10 D 12 '14

Pacific type locomotives for the Delaware & Hudson co. *Il diags Ry R* 56:763-5 D 26 '14

Pacific type locomotives for the Union Pacific. *Il Ry Age* 58:781-2 Ap 9 '15

Passenger locomotives for the Great Northern: Pacific and mountain types. *Il diags Ry Age* 57:1047-50 D 4 '14

Portuguese express locomotive. *Il diags Ry Age (Mech ed)* 59:116-17 Mr '15

Possible advantages to be derived from compounding superheater locomotives. L. H. Fry. *Ry R* 56:808-9 Je 12 '15

Possibilities of the future. J. B. Ennis. *Ry Age (Mech ed)* 59:14 Ja '15

Progress in locomotive design. *diag Engineer* 119:17-20 Ja 1 '15

Reciprocating and revolving parts. H. A. F. Campbell. *Il diags Ry Age (Mech ed)* 59:109-15, 163-9, 215-16, 390-2, 443-51 Mr-My, Ag-S '15

Santa Fe Pacific type locomotive; single expansion engine equipped for burning fuel oil. *Il diags Ry Age (Mech ed)* 59:217-19 My '15; Same. *Ry Age* 58:793-5 Ap 9 '15

Santa Fe type locomotive for the Erie R. R. *Il diags Ry R* 56:454-7 Ap 3 '15

Seaboard air line mountain type locomotives. *Il diags Ry Age* 59:87-9 J1 16 '15

Six-cylinder compound locomotive-Erie railroad. *Il Engineer* 119:213-14 F 26 '15

Steam locomotive of to-day. *Sci Am* 113:4 J1 3 '15

Steam locomotive of today: discussion. *Ry Age (Mech ed)* 59:5-14 Ja '15

Steam locomotives of to-day. *Am Soc M E J* 37:21-3; Discussion. 37:23-35 Ja '15

Steam locomotives of today: discussion. F. J. Cole. *Ry R* 56:213-15 F 13 '15

Tank locomotives for the Gold Coast railways. *Il Engineer* 119:201 F 26 '15

Thirty years of locomotive progress in Egypt. E. L. Ahrons. *diags Engineer* 118:499-501 N 27 '14

Three-cylinder locomotives. *Ry Age* 58:215-16 F 5 '15

Traveling engineers' association 23d annual convention. *Ry Age* 59:473-4, 505-13 S 10-17 '15

Traveling engineers' association 23d annual convention. *Ry R* 57:337-41, 360-2 S 11-18 '15

Two Pacific type locomotives of high power. *Il diags Ry Age* 57:1183-9 D 25 '14

Types of locomotives on British railways. *Engineer* 119:82 Ja 15 '15

Utilization of adhesion weight in steam locomotives; abstract. L. Schneider. *Am Soc M E J* 37:232-3 Ap '15

Why use a high factor of adhesion in steam locomotives? *Ry Age* 58:773 Ap 9 '15

See also Electric locomotives; Locomotive boilers and other headings beginning Locomotive; Railroads; Roundhouses; Steam engines; Stokers, Mechanical; Tractors

Classification

Universal system of locomotive classification. E. L. Ahrons. *Engineer* 120:272 S 17 '15

Cost of maintenance and operation

Annual cost of locomotive upkeep. *Engineer* 119:187, 453-4 F 19, My 7 '15

Cost per day of an engine and crew in yard service. *Ry R* 57:313 S 4 '15

Economic value of a locomotive. G. S. Goodwin. *Ry Age (Mech ed)* 59:118-20 Mr '15; Same. *Ry R* 56:267-60 F 20 '15; Same cond. *Ry Age* 58:305-6 F 19 '15

Locomotive, maintenance. *Ry Age* 59:452-3 S 10 '15

Upkeep of locomotives on Irish railways. *Engineer* 120:60 J1 16 '15

Value of a freight locomotive from transportation standpoint. N. D. Ballantine. *Ry R* 56:586-9 My 1 '15; Same. *Ry Age* 58:885-8 Ap 23 '15

Draft

Fan drafting as applied to locomotives. H. B. MacFarland. *Il diags Ry Age* 57:1119-22 D 18 '14; Same cond. *Ry Age (Mech ed)* 59:5-9 Ja '15; Abstract. *Am Soc M E J* 37:27-8 Ja '15; Abstract. *Ry R* 56:289-90 F 27 '15

Locomotive front ends and draft appliances. C. D. Young; C. E. Chambers. *Ry Age* 58:273-4 F 12 '15; Same cond. *Am Soc M E J* 37:28-9 Ja '15; Same cond. *Ry Age (Mech ed)* 59:9-10 Ja '15

Road tests for determining front end conditions. E. S. Barnum. *diags Ry Age (Mech ed)* 59:454-6 S '15

Driving boxes

Machine for boring driving boxes. E. C. Gaines. *Il Ry Age (Mech ed)* 59:138-9 Mr '15

Repairing driving boxes. P. F. Smith. *Il diags Ry Age (Mech ed)* 59:527-9 O '15

Equipment and supplies

Adjustable hub plate. *Il Ry Age* 59:331 Ag 20 '15

Exhaust nozzle with internal projections. *diags Ry Age* 58:799 Ap 9 '15; Same. *Ry Age (Mech ed)* 59:198-9 Ap '15

Feed water heater used on geared locomotives. H. S. Johnson. *diags Ry Age (Mech ed)* 59:226 My '15

Franklin automatic adjustable driving box wedge. *diags Ry Age (Mech ed)* 59:546 O '15

Locomotive and train supplies on the Frisco. *Il Ry Age* 58:697-9 Mr 26 '15

Main reservoir ball joint connection. *Il diags Ry Age (Mech ed)* 59:254 My '15

Modern appliances on large locomotives: T. E. A. report. *Ry Age* 59:505-7 S 17 '15; Same. *Ry Age (Mech ed)* 59:499-502 O '15; Abstract. *Eng M* 50:460-1 D '15

Mudge-Slater spark arrester. G. W. Bender. *Il Ry R* 57:280-1 Ag 23 '15

Present status of the variable exhaust. J. S. Bell. *Il diags Ry R* 56:797-9 Je 12 '15

Rods, tires and wheels: discussion at convention of the General Foremen's association. *Ry R* 57:78-9 J1 17 '15; *Ry Age* 59:155 J1 23 '15; *Ry Age (Mech ed)* 59:420-1 Ag '15

Showing the train number on the engine. W. E. Watts. *Ry Age* 59:473 S 10 '15

Single locomotive water joint. *Il diags Ry Age (Mech ed)* 59:201 Ap '15

Smokebox blower fitting. *Il Ry Age* 59:1019 N 26 '15

Uncoupling lever for switch engines. G. E. McCoy. *diag Ry Age (Mech ed)* 59:115 Mr '15

Variable blast nozzle on American locomotives. *diags Engineer* 120:232 S 3 '15

See also Locomotive boilers; Locomotive brakes; Locomotive fireboxes; Locomotive grates; Locomotive headlights; Locomotives—Superheaters; Stokers, Mechanical

Exhibitions

Locomotives at the Panama-Pacific exhibition. *Il Engineer* 120:86 J1 16 '15

Locomotives at the Smithsonian institution. *Il Sci Am S* 80:285 O 30 '15

Railway exhibits at the Panama-Pacific exposition. H. J. Kennedy. *Il Sci Am S* 80:60-2 J1 24 '15

Failures

Definition of locomotive failures. *Engineer* 119:89-90 Ja 22 '15

Engine failures, their causes and cure. J. E. Anderson. *Ry Age (Mech ed)* 59:587-8 N '15

Failures or breakdowns of locomotives: R. Weatherburn. *diags Engineer* 118:547-8, 575-7 D 11-18 '14

Fuel

Analysis of dependent sequence as a guide to fuel economy. H. Emerson. *Ry R* 57:19-23 J1 3 '15; Same cond. *Ry Age* 58:1057-9 My 21 '15; Same cond. *Ry Age (Mech ed)* 59:273-4 Je '15

Locomotives—Fuel—Continued

Efforts at fuel economy, Rock Island lines.

W. J. Tollerton. Ry R 57:354-5 S 18 '15

Fuel association convention; papers on powdered coal, prevention of smoke, fuel stations, mechanical stokers and fuel oil. Ry Age (Mech ed) 89:271-83 Je '15

Fuel economy on locomotives. Il Ry R 57:181-5 Ag 7 '15

Fuel oil for locomotives. G. M. Bean. diags Ry R 56:752-6 Je 5 '15; Same cond. Power 41: 900-1 Je 29 '15; Same cond. Ry Age (Mech ed) 89:280-1 Je '15; Same cond. Ry Age 58: 1115-16 My 28 '15; Same cond. Sci Am 113: 82 J1 31 '15

Fuel oil installations on the Grand Trunk Pacific Ry. J. G. LeGrand. diags Ry R 56:823-31 Je 19 '15

Improved performance with old-type coaling facilities. J. S. Williams. Ry Age (Mech ed) 89:86 F '15

International railway fuel association. 7th annual convention. Ry Age 58:1113-19 My 28 '15

International railway fuel association, 7th annual convention. Ry R 56:596-708 My 22 '15

Powdered coal. W. L. Robinson. Ry Age 58: 1065-6 My 21 '15; Summary, with discussion. Ry R 56:896-7 My 22 '15

Powdered coal, its preparation and use in locomotives and stationary boilers. W. L. Robinson. Ry R 56:773-6 Je 5 '15; Abstracts. Ry Age (Mech ed) 89:271-3 Je '15; Power 41: 798-4 Je 8 '15; Colliery 35:646-8 J1 '15; Sci Am S 80:139 Ag 28 '15

Pulverized fuel for locomotives. Ry Age 58: 941-3 Ap 30 '15; Same. Ry Age (Mech ed) 89:213-16 My '15; Same cond. Eng M 49:440-1 Je '15

Railroad fuel economy. M. C. M. Hatch. Ry Il 56:506-9 Ap 10 '15; Same cond. Ry Age 58: 449-51 Mr 12 '15

Saving coal. C. Maier. Ry Age (Mech ed) 89: 442 S '15

Saving of fuel on locomotives by the use of feedwater preheating; abstract. Strahl. diags Am Soc M E J 37:606-7 O '15

See also Locomotives—Smoke problem

Inspection

Argument against extension of locomotive boiler inspection service. Ry R 56:317-20 Mr 6 '15

Bill extending boiler inspection to entire locomotive. Ry R 56:127 Ja 23 '15

Federal boiler inspectors seek entire control of locomotives. Ry Age 58:293 F 19 '15

Federal inspection of locomotives and tenders. Ry Age 58:451 Mr 12 '15

Federal locomotive inspection. Ry Age 59:906 N 12 '15

Inspection of locomotives and tenders. Ry Age 58:1052-3 My 21 '15

Inspection of locomotives and tenders. Ry Age (Mech ed) 89:284 Je '15

Rules for federal inspection of locomotives and tenders. Ry R 57:907-11 S 4 '15; Same abr. Ry Age 59:426-8 S 3 '15

See also Locomotive boilers

Lubrication

Double action force feed cylinder lubricator. diags Ry Age 59:612 O 1 '15; Same. Ry Age (Mech ed) 89:489-90 S '15

Lubricating rails on curves to reduce wear. Eng N 73:475 Mr 11 '15

Manufacture

Heat treated and alloy steels for locomotive parts. C. D. Young. Ry Age 57:1129-30 D 13 '14; Same. Ry Age (Mech ed) 89:18-14 Ja '15

Reciprocating and revolving parts; alloy and heat-treated carbon steel. H. A. F. Campbell. Ry Age (Mech ed) 89:215-16 My '15

Rolled and forged steel pistons. W. V. Scott, Jr. Il diags Ry R 56:48-52 Ja 9 '15; Same cond. Ry Age (Mech ed) 89:343-5 J1 '15; Abstract. Am Soc M E J 37:191-2 Mr '15

Turning engine bolts. C. L. Dickert. Il diags Ry Age (Mech ed) 89:193-4 Ap '15

Use of high-grade alloy steels to reduce weight of locomotives. H. V. Wille. Am Soc M E J 87:31-2 Ja '15

Material

See Locomotives—Manufacture

Models

Model locomotive built by apprentices at Dunmore, Pa. Il Ry Age (Mech ed) 89:456 S '15

Operation

Economic value of a locomotive. G. S. Goodwin. Ry Age (Mech ed) 89:118-20 Mr '15; Same. Ry R 56:257-60 F 20 '15; Same cond. Ry Age 58:305-6 F 19 '15

Effect of water level on superheat. M. C. M. Hatch. Ry Age 59:191 J1 30 '15

Value of a freight locomotive from transportation standpoint. N. D. Ballantine. Ry R 56:596-9 My 1 '15; Same. Ry Age 58:885-8 Ap 23 '15

Painting

Painting locomotives and steel cars. M. L. Sims. Ry Age (Mech ed) 88:641-2 D '14; Abstract. Am Soc M E J 37:120-1 F '15

Performance

Diagram for determining percentage of maximum tractive effort. L. R. Pomeroy. Ry Age (Mech ed) 89:453-4 S '15

Fuel and tonnage performance on the Seaboard. L. G. Plant. Il Ry Age 58:405-8 Mr 5 '15

Locomotive performance on the Great Northern railway. Engineer 119:549-50, 583 Je 4-11 '15

Number of tons of rail per mile of road; formula for the tractive force of a locomotive. Colliery 36:144 O '15

Superheater locomotives and grade revision. Ry Age 59:637-8 O 8 '15

Superheater locomotives and grade revision. P. M. La Bach. Ry Age 59:469-71, 848 S 10, N 5 '15

Repair

Engine house repair work. M. Vallen. Ry Age (Mech ed) 89:85-6 F '15

Factors in locomotive maintenance. E. Becker. Ry Age (Mech ed) 89:140 Mr '15

Locomotive running repairs. E. Cordeau. Ry Age (Mech ed) 89:37-9 Ja '15

Patching boilers according to law. G. G. Lynch. diags Ry Age (Mech ed) 88:834-6 D '14

Repair work at small engine houses. G. H. Roberts. Ry Age (Mech ed) 88:833-4 D '14

Repairing driving boxes. P. F. Smith. Il diags Ry Age (Mech ed) 89:527-8 O '15

Running repairs. Ry Age (Mech ed) 89:41-2 Ja '15

See also Locomotive shops

Smoke problem

Abatement of locomotive smoke in Cincinnati. G. H. Funk. Ry Age (Mech ed) 89:566 N '15

Difficulties accompanying the prevention of dense black smoke and its relation to the cost of fuel and locomotive repairs; report. Ry R 57:337-8 S 11 '15

Educating enginemen in smoke elimination. Ry Age (Mech ed) 89:216 My '15

Firing up engines at engine houses. Ry Age (Mech ed) 88:636 D '14

Locomotive smoke in Chicago. Ry Age 58:694 Mr 26 '15

Smoke prevention; abstracts. E. W. Pratt. Ry Age 58:1059 My 21 '15; Ry R 58:698-9 My 22 '15; Ry Age (Mech ed) 89:274-5 Je '15

Smoke prevention with oil burning locomotives; report; abstracts. Ry Age 59:473 S 10 '15; Ry Age (Mech ed) 89:509 O '15

Smokeless locomotive operation without special apparatus. H. H. Maxfield. Ry R 57:426-9 O 2 '15; Same cond. Ry Age (Mech ed) 89:561-2 N '15; Same cond. Power 42:491-2 O 5 '15

Washing locomotive smoke. M. D. Franey. diag plan Ry Age 59:568-60 S 24 '15; Same. Ry Age (Mech ed) 89:511-13 O '15; Same. Power 42:561-3 O 19 '15; Same cond. Eng N 74:906-7 N 4 '15; Excerpt. Ry R 57:387-8 S 25 '15

Spring rigging

Spring rigging design. J. P. Shamberger. diags Ry Age (Mech ed) 89:15-18 Ja '15

Springs

Characteristics of plate springs. G. S. Chiles. Il Ry Age (Mech ed) 89:161-3, 219-22, 840-3, 392-5 Ap-May, J1-Ag '15

Locomotives—Springs—Continued

Master blacksmiths' convention; discussion of spring making and repairing. *Il Ry Age (Mech ed)* 89:474-5 S '15

Stokers

See Stokers, Mechanical

Superheaters

Discussion on superheating. H. B. Oatley. *Am Soc M E J* 37:29 Ja '15

Locomotive superheaters. G. L. Bourne. *Ry Age* 58:96 Ja '15; Same. *Ry Age (Mech ed)* 89:12-13 Ja '15

Locomotive superheaters. R. M. Ostermann. *diags Am Soc M E J* 37:388-90 Ji '15

Modern appliances on large locomotives: T. E. A. report. *Ry Age* 59:506-8 S '15; Same. *Ry Age (Mech ed)* 89:499-500 O '15; Abstract. *Eng M* 50:480 D '15

Railroad session of the Chicago section, American society of mechanical engineers. *Ry R* 56:84 Ja '15

Removing indentations in superheater smoke tubes. H. M. Brown. *diags Ry Age (Mech ed)* 89:40 Ja '15

Small-smoke-tube superheaters for locomotives; abstract. Metzeldin. *Am Soc M E J* 37: 807-8 O '15

Superheater locomotives and grade revision. *Ry Age* 59:537-8 O '15

Superheater locomotives and grade revision. F. M. La Bach. *Ry Age* 59:489-71, 848 S '10, N '15

Testing

Lateral stresses in rails on straight track. G. L. Fowler. *diag Ry Age* 58:1231-3 Je '11

Lateral stresses on rails in curved tracks. G. L. Fowler. *Il Ry Age* 59:319-22 Ag '20 '15

Locomotive tests on the Chicago & North Western. *diags Ry Age* 58:93-4 Ja '15

Road tests for determining front end conditions. E. S. Barnum. *diags Ry Age (Mech ed)* 89:454-6 S '15

Tests of a mountain type locomotive on the Rock Island. W. J. Tollerton. *Il Ry Age* 58: 829-31 Ap '16

Valves and valve gear

Application of piston valves to slide valve cylinders. *Il Ry Age* 58:456 Mr '12 '15

Automatic drifting valve. *diag Ry Age* 59:246 Ag '6 '15

Automatic drifting valve. *diags Ry Age* 59:912 N '12 '15; Same. *Ry Age (Mech ed)* 89:593-4 N '15

Cylinders and valve gears. G. W. Rink. *Ry Age* 58:750 Ap '2 '15

Discussion at convention of the General foremen's association. *Ry R* 57:76-8 Ji '17 '15

Effect of valve gear on locomotive operation. W. E. Preston. *Ry Age (Mech ed)* 89:505-7 O '15

Heart of the locomotive; the reason for the grasshopper valve motions. C. H. Claudy. *Il diags Sci Am* 113:76+ Ji '24 '15

International railway general foremen's association; committee report. *Ry Age (Mech ed)* 89:417-20 Ag '15; Same cond. *Ry Age* 59:102-4 Ji '16 '15

Kingan-Ripken valve gear device. *Il Ry Age (Mech ed)* 89:483-4 S '15

Laying out the southern valve gear. H. Cornell. *Ry Age (Mech ed)* 89:386 Ag '15

Locomotive safety valve. *diag Ry Age (Mech ed)* 89:255 My '15

Piston valve packing rings. W. F. Lauer. *diags Ry Age (Mech ed)* 89:583 N '15

Relief valve for superheater locomotives. W. B. Middleton. *diags Ry Age (Mech ed)* 89:416 Ag '15

Safety cut-out valve. *diags Ry Age (Mech ed)* 89:44-5 Ja '15; Same. *Ry Age* 58:708 Mr '26 '15

Slide valve lubrication on the Buffalo, Rochester & Pittsburgh. *diags Ry Age* 59:283-4 Ag '13 '15

Soo line Walschaert valve gear. W. Smith. *diag Ry R* 57:311-12 S '4 '15

Southern locomotive valve gear. R. S. Mounce. *Il diags Ry Age (Mech ed)* 89:59-61 F '15

Southern locomotive valve gear. W. Smith. *diag Ry R* 57:214-15 Ag '14 '15

Systematic valve setting on locomotives. J. R. Britton. *Ry R* 56:799-800 Je '12 '15; Excerpts. *Ry Age (Mech ed)* 89:386 Ji '15

Valve gear design and locomotive operation. W. E. Preston. *diags Ry Age* 59:511-13 S '17 '15

Walschaert valve gear designed for variable lead. W. Smith. *Ry R* 57:266-6 Ag '28 '15

Young locomotive valve gear. *diags Ry R* 57: 312-13 S '4 '15

Bibliography

List of references on locomotive valve gear. *Locomotive Firemen and Enginemen's Magazine* 58:509-15 My '15

Wheels

Energy contained in revolving wheels and locomotive axle rods. W. E. Symons. *Ry Age* 59:455 S '10 '15

Locomotives, Electric. See Electric locomotives**Locomotives, Gas and oil**

Equalization of masses in motor driven locomotives and oscillations due to it; abstract. H. Henich. *Am Soc M E J* 37:558 S '15

Gasoline locomotive haulage; its cost as compared to mule haulage at mines of Trospier coal co., Braden, Ky. *Il Colliery* 35:547-8 My '15

Gasoline locomotives. A. H. Ehle. *Eng M* 48: 915-17 Mr '15; Same. *Sci Am S* 79:243 Ap '17 '15

Gasoline switching locomotive. *Il plan Ry Age* 58:101-2 Ja '15 '15

Switching locomotives driven by gasoline-engine power. *Il plan Eng N* 73:762-3 Ap '22 '15

Locomotives, Industrial

Oil geared construction locomotive. *Il Eng & Contr* 43:579-80 Je '30 '15; *Eng Rec* 72:33 Ji '3 '15

Small locomotives for construction and industrial service. *Il Eng N* 73:964-5 My '20 '15

Locomotives, Mine

Developments in electrical apparatus during 1914. J. Liston. *Il Gen Elec R* 13:87-8 F '15

Gasoline locomotives in relation to the health of miners. O. P. Hood. *Am Inst Min E Bul* 94:2607-11 O '14; Discussion. 100:892-4 Ap '15

Modern electric mine locomotive. G. Bright. *Il Am Inst E E Pro* 34:1615-20 Ag '15; Same. *Colliery* 36:145-6 O '15

Modern mine haulage motor. C. W. Larson. *Il Gen Elec R* 13:264-8 Ap '15

Storage-battery locomotives. *Colliery* 35:259-60 D '14

Underground haulage by storage-battery locomotives in the Bunker Hill & Sullivan mine. J. W. Gwinn. *Il Am Inst Min E Bul* 98:239-47 F '15; Discussion. 101:1189-97 My '15

Lodges

Details of an Indiana fishing lodge. *Il plan Bldg Age* 37:39-40 S '15

Loft buildings

Concrete manufacturing buildings in Hoboken. N. J. *Il plans Arch & Bldg* 47:869-72 O '15

National cloak and suit co's. building. *Il diag Arch & Bldg* 46:451-3 N '14

Logging. See Lumbering**Logwood**

Emergency use of logwood. L. J. Matos. *Textile World* 49:114-16 Ap '15

Logwood dyes. *Textile World* 49:548-9 Ag '15

London, England**Architecture**

Church towers, steeples, and spires of Sir Christopher Wren. R. R. Phillips. *Il Brickb* 24:185-9, 228-32 Ag-S '15

County hall

London county hall. *diags Engineer* 120:147-8 Ag '13 '15

Electricity supply

Centralization of London energy supply. *Elec W* 64:1137 D '12 '14

Linking up the London electric supply stations. *Engineer* 120:16-17 Ji '15

Lighting

Electric lighting in London. *Engineer* 119: 360 Ag '15

London, England—Lighting—Continued

Illuminating engineering in war time; with discussion. L. Gaster. *Illum Engr* 8:13-26 Ja '15

Lights out: some comments in the press on the lighting conditions in London. *Illum Engr* 7:516-18 N '14

London in the dark. R. K. Cummings. *Il Munic Eng* 48:814 My '15

London's lighting during the war. *Illum Engr* 8:463-4 N '15

Street lighting of London. W. B. Conant. *Il Munic Eng* 48:333-6 Je '15

Railroads

Railway problem of London. map Engineer 119:619-20, 632-3 Je 25 '15

Rapid transit

Extension of the Bakerloo tube. *Il plans map Engineer* 119:29-31, 56-8, 92-4 Ja 3-22 '15

London county council tramways. Engineer 120:13 Jl 2 '15

Traffic

Growth of London passenger traffic. *Eng N* 73:1223 Je 24 '15

London traffic dangers. *Sci Am S* 79:213 Ap 3 '15

London traffic in 1913. A. Stanley. *Elec Ry J* 46:622-3 S 25 '15

Water supply

Water supply of London. Engineer 120:266 S 17 '15

London & South-western railway

Electrification on the London and South-western railway. *Il diags Engineer* 120:289-91, 310-13, 342, 346-9 S 24-O 3 '15

New electrification work on London suburban railroads. *Elec R & W Elec'n* 67:852-4 N 6 '15

Suburban electrification. *Il Elec Ry J* 46:226 Ag 7 '15

Long Island

Coast erosion and protection on Long Island and New Jersey. G. O. Case. map *Eng N* 74:348-51, 388-91, 438-42 Ag 19-S 2 '15

Long Island railroad

Long Island railroad adopts light, steel trailers. *Il diags Elec Ry J* 46:136-8 Jl 24 '15

Operation in 1914. map *Ry Age* 58:814-16 Ap 16 '15

Longitude

Longitude determinations of great accuracy. O. B. French. *Il Eng N* 74:537-8 S 23 '15

Longitudes by wireless telegraphy. F. B. Littell. *Sci Am* 112:382-3 Ap 24 '15

Washington-Paris longitude by radio signals; a valuable application of wireless communication. F. B. Littell and G. A. Hill. *Sci Am S* 79:266-7 Ap 24 '15

Longleaf pine. See Pine**Longview, Texas****Water supply**

Water supply of Longview, Texas. P. H. Green. *Am Water Works Assn J* 2:416-21 Je '15

Loomis Institute, Windsor, Connecticut

Heating equipment in Loomis institute. *Il plan Metal Work* 83:354-5 Mr 5 '15

Plumbing equipment in Loomis institute. *Il diags plan Metal Work* 83:323-6 F 26 '15

Looms

Automatic loom. *Il diags Engineer* 120:84-6, 88, 132 Jl 23, Ag 6 '15

Improved loom. *diag Textile World* 48:632-4 Mr '15

Lock washers for draper looms. *Il Textile World* 48:695 S '15

Thin-place preventer for looms. *diag Textile World* 48:488-4 F '15

Lorries. See Motor trucks; Motor trucks, Military**Los Angeles, California**

Los Angeles annexes more territory. B. A. Heinly. *Eng N* 73:956 My 13 '15

Panama canal and the ports of the Pacific. A. J. Quigley. *Il maps Eng M* 48:650-3 F '15

Architecture

First church of Christ, Scientist. *Il diags plans Brickb* 24:pl 86-8 Je '15

Public works

Cost of cement, Los Angeles municipal plant. F. C. Finkle; O. H. Clemens. *Eng N* 73:229 F 4 '15

Los Angeles nears realization of city power plan. *Il Eng Rec* 72:167 Ag 7 '15

Water-works farming and forestry by Los Angeles. B. A. Heinly. *Eng N* 73:746 Ap 15 '15

Sanitary affairs

Garbage and rubbish disposal in Los Angeles. S. C. Simons. *Il plan Munic J* 38:799-803 Je 10 '15

Method and cost of refuse collection and disposal in Los Angeles. A. C. Hansen. *Eng & Contr* 44:255-6 S 29 '15

Sewerage

Beat scheduled time five months in building huge De la Brea sewer. *Il Eng Rec* 72:130-2 Jl 31 '15

Water supply

Design and methods and cost of constructing the Los Angeles city trunk line, connecting aqueduct to distribution system. B. A. Heinly. *Il diags Eng & Contr* 43:390-4 My 5 '15

See also Los Angeles aqueduct

Wharves

Municipal wharves and sheds at Los Angeles. *Il diags Eng N* 73:824-5 Ap 29 '15

Los Angeles aqueduct

Aqueduct outlet cascades. *Il diags Eng N* 74:456-6 S 2 '15

Plan for municipal irrigation from the Los Angeles aqueduct. B. A. Heinly. map *Eng N* 73:344-6 F 18 '15

Sanitary features of the Los Angeles aqueduct. H. O. Slater. map *J Ind & Eng Chem* 7:622-5 Jl '15

Lost articles

Handling lost articles. *Elec Ry J* 45:28 Ja 2 '15

Louisiana**Industries and resources**

Petroleum in Texas and Louisiana. A. J. Hazlett. *Eng & Min J* 99:137-9 Ja 16 '15

Louisville, Kentucky**Bridges**

Direct-lift span provides 55-foot clearance over Louisville and Portland canal. *Il Eng Rec* 72:199-200 Ag 14 '15

Sewerage

Beargrass Creek storm-water channel at Louisville, Ky. J. H. Kimball. *Il diag plan Eng N* 72:1256-60 D 24 '14

Louisville & Nashville railroad

Abstract of annual report. map *Ry Age* 59:846-7 N 5 '15

Louisville & Nashville investigation. *Ry Age* 58:413-14 Mr 5 '15

Low temperature. See Temperature, Low**Lowell, Massachusetts****Water supply**

Lowell filtration plant for removing iron and manganese from water. W. B. Conant. *Il plan Munic J* 39:613-15 O 21 '15

Lubricants. See Lubrication and lubricants**Lubrication and lubricants**

Arrangements to maintain constant oil supply for large generating units. *diag Elec W* 66:25 Jl 3 '15

Automobile lubrication. C. W. Stratford. *Il Sci Am S* 79:392-3, 412-14 Je 19-26 '15; Same. *Horseless Age* 35:879-81; 36:16-19 Je 30-Jl 7 '15

Bearing lubricating system. *Il Power* 42:638 N 16 '15

Central oiler for vertical crankpin. *Il Power* 41:735 Je 1 '15

Chart illustrating the proper lubrication of the standard motor car chassis; with explanation. *Il Sci Am* 112:13 Ja 2 '15

Circulating-oil system of lubrication. plans *Elec W* 65:411 F 13 '15

Lubrication and lubricants—Continued

- Clutch drive lubricator. *Il* Power 42:329-30 S 7 '15
- Compressed air grease cups. *diag* Mach 21:718 My '15
- Counter-current lubricating oil cooler. *diag* Iron Age 96:199 J1 22 '15
- Cylinder friction and lubrication testing apparatus. A. Flowers. *diag* Power 42:208-10 Ag 10 '15
- De La Vergne oil reclaimer. *Il* *diag* Power 42:336-7 S 7 '15; Iron Age 96:1103-4 N 4 '15
- Elevator-rail greaser. *diag* Power 41:82-3 Ja 19 '15
- F. H. Wells lubricant pump. *Il* *diag* Mach 21:679-80 Ap '15
- Keystone grease retarder. *diag* Power 41:117-18 Ja 26 '15
- Laps and lapping; abstracts. W. A. Knight and A. A. Case. *diags* Am Soc M E J 37:451-6 Ag '15; Iron Tr R 57:24-6 J1 1 '15; Mach 21:976-8 Ag '15; Discussion. Am Soc M E J 37:456-8 Ag '15
- Laws of lubrication of journal bearings. M. D. Hersey. Am Soc M E J 37:524-7; Discussion. 37:537-8 S '15
- Lubricating oil for Diesel engines and air compressors. H. Moore. Engineer 120:176 Ag 20 '15
- Lubricating oil tests. R. C. Merchant. Colliery 35:615-1 Je '15
- Lubricating oils in the metal trades. F. Wiessner. Metal Ind n s 13:188 My '15
- Lubrication. J. W. Fromeyer. Power 41:721-2 My 25 '15
- Lubrication of ball bearings. A. V. Farr. Elec W 65:925-6 Ap 10 '15
- Lubrication of ball bearings. L. G. Long. Mach 21:914-15 J1 '15
- Lubrication of car journals. W. A. Clark. Ry Age (Mech ed) 89:19-20 Ja '15
- Lubrication of journal bearings. Iron Age 96:25-8 J1 1 '15
- Lubrication of pneumatic tools. Ry R 57:276-7 Ag 28 '15
- Lubrication troubles. Int Marine Eng 20:512 N '15
- Machine tool lubricant pump. *Il* Ry Age (Mech ed) 89:589-90 N '15
- Method of lifting oil for a gravity-feed system by use of condenser vacuum. A. Kuylenstierna. *diags* Elec W 66:1149 N 20 '15
- Motor cylinder lubrication; abstract. G. S. Bryan. Am Soc M E J 37:293-4 My '15
- Nugent pressure return oiling system. *Il* Power 41:90 Ja 19 '15
- Oil economizer. *diags* Power 42:745-6 N 30 '15
- Oil troubles experienced in the refrigeration system. A. G. Solomon. Power 42:234-5 Ag 17 '15
- Phenix oil and graphite cylinder lubricator. *diag* Power 41:780-1 Je 8 '15
- Properties of lubricating oils. O. J. May. Horseless Age 35:338 Mr 10 '15
- Quick method for testing the non-staining quality of textile oils. T. T. Gray. *Il* Textile World 49:568-9 Ag '15
- Slide valve lubrication on the Buffalo, Rochester & Pittsburgh. *diags* Ry Age 59:283-4 Ag 13 '15
- Testing lubricating oils. A. H. Gill. Power 41:522-3 Ap 13 '15
- Tests of lubricants. H. M. Baxter. Ry Age (Mech ed) 89:225-6 My '15
- Theory of lubrication. L. Ubbelohde. Gen Elec R 18:96-72, 1074-81, 1118-21 O-D '15
- Use and abuse of oil at mines. C. T. Thomsen. Colliery 35:665-8 J1 '15
- What makes a good lubricant. H. Tipper. Power 42:452-3 S 25 '15
- See also* Automobile engines—Lubrication; Bearings; Castor oil; Graphite; Locomotives—Lubrication; Oils and fats
- Ludington, Michigan**
- Sewerage**
- Sewer construction at Ludington. G. W. Clark. *Il* Munic J 38:62-4 Ja 21 '15
- Lumber**
- Electricity in the largest lumber mill; Weyerhaeuser co., Everett, Wash. A. H. Onstad. *Il* Elec W 66:1080-1 N 13 '15
- Electricity in the lumber industry. E. F. Whitney. *Il* *diag* plans Am Inst E E Pro 33:1823-62 D '14; Discussion. 34:439-51 Mr '15
- One-third of our lumber wasted. Am For 21:876-7 Ag '15
- Production of lumber in 1913. tables U S Agric Bul 232:1-32 '15
- Proper manner of ordering lumber. T. O. Wood. Ry Age (Mech ed) 89:574 N '15
- Substitutes for expensive lumber. W. H. Clifton. Ry Age 58:1045-6 My 21 '15; Same. Ry R 56:691-2 My 22 '15; Same. Ry Age (Mech ed) 89:288-9 Je '15
- See also* Forests and forestry; Lumbering; Pine; Sawmills; Timber; Wood; Wood-working machinery
- Lumber drying**
- Discoloration of maple in the kiln. R. C. Judd. J Ind & Eng Chem 7:920 N '15
- Norfolk & Western humidity-controlled dry kiln for lumber. W. H. Lewis. *Il* plans Ry Age (Mech ed) 89:462-4 S '15; Same. Ry Age 59:431-3 S 3 '15
- Lumber handling**
- Application of electric power in a lumber yard. *Il* *diag* Elec R & W Elec'n 66:400-1 F 27 '15
- Automatic handling of lumber with aid of electric motors and solenoids. *Il* Elec W 66:704 S 25 '15
- Covered slip and pier with gantry cranes for handling lumber. *diags* Eng N 74:484-5 S 3 '15
- Log-handling equipment at Arrowrock dam. C. H. Paul. *diags* map Eng N 74:200-1 J1 29 '15
- Lumber operations on the Atlantic coast; modern lumber steamer and complete terminals under construction for shipping lumber from Florida to New York. *diags* Int Marine Eng 20:126-3 Mr '15
- Lumber trade**
- American lumber market. E. B. Hazen. Am For 21:208-12, 576-81 Mr-Apr '15
- Canadian lumber competition. H. D. Langille. *Il* Am For 21:130-9 F '15
- China and Indo-China markets for American lumber. F. H. Smith. U S Bur For & Dom Com 104:1-39 '15
- European war and the lumber trade. R. C. Bryant. Am For 20:881-6 D '14
- Forest products federation. E. A. Sterling. Am For 21:55-6 Ja '15
- Japanese markets for American lumber. F. H. Smith. U S Bur For & Dom Com 94:1-16 '15
- Lumber industry inquiry. Am For 21:939-40 S '15
- Philippine markets for American lumber. F. H. Smith. U S Bur For & Dom Com 100:1-16 '15
- War and lumber. Sci Am 113:194 S 4 '15
- See also* Cedar; Northern white cedar association
- Lumbering**
- Electricity in the lumber industry. E. F. Whitney. *Il* Am Inst E E Pro 33:1823-31 D '14
- Laking. W. R. Brown. *Il* Am For 21:628-36 My '15
- Logging Rasak and Lagan. T. R. Helms. *Il* Am For 21:1050-3 N '15
- Southern cypress. W. R. Mattoon. *Il* U S Agric Bul 272:11-17 '15
- Topographic surveys for logging operations. E. A. Marshall. *Il* *diag* Eng N 73:1112-15 Je 10 '15
- See also* Lumber trade
- Luminosity of animals.** *See* Phosphorescence
- Lunch rooms**
- Industrial betterment. F. E. Cardullo. Mach 22:182-3 N '15
- See also* Steam tables
- Lusitania (steamship)**
- Scientific savagery. Engineer 119:433-4 My 14 '15
- War, humanized and de-humanized. Sci Am 112:468 My 23 '15
- What sank the Lusitania? Sci Am 112:488 My 29 '15
- Lye**
- Lye hulling of corn for hominy. J. W. Marden and J. A. Montgomery. J Ind & Eng Chem 7:850-3 O '15
- Lye tanks**
- Care of lye tanks. J. A. Jesson. *diag* Ry Age (Mech ed) 89:183 Ap '15

Lyndon, Lamar
Builder of the Austin dam. por Elec R & W
Elec'n 66:937 My 22 '15
Lyne furnace. See Furnaces
Lynn, Massachusetts

Railroads

Track elevation at Lynn. C. B. Breed. II diag
plans Eng N 74:533-7 S 16 '15

Streets

Street paving in Lynn. H. T. Rich. II Munic
J 33:283-4 Mr 4 '15

Water supply

Lynn waterworks improvement. W. B. Conant.
II Munic J 39:661-2 O 28 '15

M

Macadamized roads. See Roads, Macadamized

McChord, Charles C.

Sketch. por Ry Age 58:627 Mr 19 '15

Machine design. See Machinery—Design

Machine expense

Distributing overhead expense. N: T. Ficker.
Eng M 50:390-400 D '15

Machine shop management

Brief on management; testimony of Carl G.
Barth before the Federal commission on in-
dustrial relations. Iron Age 96:1065-8 N 4 '15

Illinois Central tool system; standardization
and distribution include a central tool room
with an accurate cost system. O. D. Kinsey.
II Ry Age (Mech ed) 89:361-4 J1 '15

Inspection system for machine shops. W: B.
Wessels. Mach 21:451-3 F '15

Jobbing machine shop cost system. II Iron Age
96:833-5 O 14 '15

Modern estimating methods. A. A. Dowd. II
diags Mach 21:463-9 F '15

Production and premium system. A. J. Schnei-
der. Mach 21:795-6 Je '15

Safety organization of a machine shop. L. D.
Burlingame. II Mach 22:203-9 N '15

Spacing of machines. Mach 21:723 My '15

Using the electric-power meter to measure
wasted production. R. E. Loper. Eng M 49:
231-4 My '15

Utilization of time study data. R. T. Kent.
Iron Age 95:1178-81 My 27 '15; Same. Iron
Tr R 56:1109-13+ Je 3 '15; Same. Ind Eng
15:98-103 S '15

See also Electric railroads—Shops; Locomo-
tive shops; Machine shop practice; Produc-
tograph; Railroads—Shops; Repair shops;
Scientific management; Shop management

Machine shop practice

Clips for securing data tags to steam gages
and safety valves. C. L. Dickert. diags Ry
Age (Mech ed) 89:131-2 Mr '15

Diagram for determining cutting time. I. Schel-
beck. Mach 21:473 F '15

Doing lathe work on all-ganged gang drills. II
diags Mach 21:740-2 My '15

Drawing metal tubes of special section. C. L.
Lucas. II diag Mach 21:457-9 F '15

Economical handling of odd machining jobs.
A. A. Dowd. diags Iron Age 96:558-9 Mr 11
'15

Electric power in the machine shop. A. L. De
Leeuw. Iron Tr R 57:688-90+ O 7 '15

Fitting crown brasses on a draw-cut shaper.
II Mach 21:718 My '15

Ford methods and the Ford shops. H. L. Ar-
nold; F. L. Faurote. II Eng M 47:331-58,
507-32, 567-92, 557-86; 48:33-60, 338-66, 704-
21, 859-76 Je-O, D '14, F-Mr '15

Increasing production: meeting the fatigue
factor at Studebaker works. H. E. Barr. II
Iron Age 96:298-9 F 4 '15

Individual versus group drive machine tools.
C. Fair. Am Inst E E Pro 34:2715-21 N '15

Machining a piston ring. S: L. Robinson. II
Power 42:24-5 J1 6 '15

Machining and assembling shrapnel cases.
C. A. Tupper. diags Iron Age 96:570-3 S 9
'15

Machining castings in the automatic screw
machine. E. Whitney. diags Mach 21:381-2
Ja '15

Machining flywheels. II diags Mach 21:818-15
Je '15

Machining high-explosive shells. C. A. Tupper.
diag Iron Age 96:806-9 O 7 '15

Machining irregular contours. A. A. Dowd.
diags Mach 21:536-43 Mr '15

Machining motor cycle parts. D. T. Hamilton.
II Mach 21:377-80 Ja '15

Machining motor truck sprockets and drums.
A. A. Dowd. diags Horseless Age 35:436-9
Mr 31 '15

Machining of a shrapnel shell case: the Reed-
Prentice system. diags Iron Age 95:73-4 Ja
7 '15

Machining shrapnel shells. D. T. Hamilton. II
Mach 21:619-39 Ap '15; Same abr. Sci Am S
80:12-13 J1 3 '15

Machining shrapnel shells; tool equipment
used on the Potter & Johnston automatic
chucking and turning machine. II diags Mach
21:572-5 Mr '15

Machining steel motor truck wheels. A. A.
Dowd. diags Horseless Age 34:833-5 D 16 '14

Machining thin bronze bushings. A. A. Dowd.
diags Mach 21:980-2 Ag '15

Making cartridge cases. D. T. Hamilton. II
diags Mach 21:651-6 Ap '15; Excerpt. Sci
Am S 80:29-30 J1 10 '15

Making fuse parts. II diags Mach 21:641-50
Ap '15

Making superheated steam gate valves. II
Iron Age 95:845-7 Ap 15 '15

Making the Gilbert wood pulley. II Mach 21:
483-6 F '15

Making vertical forming tools: practice of the
Windsor machine co. C: F. Schlegel. II diags
Mach 21:865-71 D '14

Manufacture of chain. F. H. Mayoh. II diags
Mach 21:817-20 Je '15

Manufacture of shrapnel. II diag Metal Ind
n s 13:137-9 Ap '15

Manufacture of the Diesel engine: production
processes and the plant of the Busch-Sulzer
bros., St. Louis. O. J. Abell. II diags plan
Iron Age 95:57-64 Ja 7 '15

Master blacksmiths' convention; discussion
of shop kinks. diags Ry Age (Mech ed) 89:
480-1 S '15

Problem in slotting and indexing. D. A. Hamp-
son. II diags Mach 22:135-6 O '15

Progress in machine shop methods. E. R. Nor-
ris. II Iron Tr R 57:679-82+, 747-50 O 7-14 '15

Sweep-milling and shaving operations on
pistol frames. II diag Mach 21:886-7 Ap '15

Testing Locke steel sprocket chain. E: K.
Hammond. II Mach 22:24-7 S '15

Tool room notes. A. R. Davis. diags Ry Age
(Mech ed) 88:838-9 D '14

Valve part manufacturing on a bench lathe. II
diags Mach 23:49-50 S '15

See also Broaching; Chucks; Drafting room
practice; Drilling and boring; Dynamos;
Engines; Forging; Foundry practice; Gear
cutting; Grinding and polishing; Hobbing;
Lathes; Machine shop management; Machine
tools; Machinery; Planing machines; Rivet-
ing; Sheet metal work; Welding

Machine shops

Convenient power-house machine shop. II Elec
W 65:1622 Je 19 '15

Cranes for the machine shop and foundry.
H. M. Lane. diags Iron Age 96:246-8 J1 29
'15

Electric locomotive repair shops, New York,
New Haven & Hartford R. R., Van Nest,
New York. diag plans Ry R 57:363-5 S 18 '15

Electricity in harvesting machinery works. II
Elec R & W Elec'n 67:745-50, 883-3 O 23, N
13 '15

Homestead repair shops. II plan Iron Tr R
56:659-65 Ap 1 '15

Hot-blast heating in machine shop and found-
ry. (Engineers' study course) C: L. Hub-
bard. diags Power 40:853-60 D 15 '14

Machine shop equipment, methods and pro-
cesses. E. R. Norris. Elec Ry J 46:626-7 S
25 '15

Metal plate floor shop. J. J. Turteltaub. II Iron
Age 95:339 Ja 28 '15

Modern sheet metal machinery plant. II plans
Metal Work 83:127-9 Ja 15 '15

Machine shops—Continued

- New England machine tool plant. E. C. Kreutzberg. 11 plan Iron Tr R 56:1265-9 Je 17 '15
- One-story machine shop at Norfolk Downs, Mass.—designed for two additional stories. 11 plan Concrete Cem 6:259-60 My '15
- Putnam machine company's plant, Fitchburg, Mass.; with diagram of layout. 11 Iron Age 96:292-5 Ag 5 '15
- Shops for repair purposes at Gary. 11 plan Iron Tr R 56:277-81+ F 4 '15
- Snapshots on the road. Mach 21:490-1 F '15
- See also* Bridge shops; Electric railroads—Shops; Locomotive shops; Machine shop management; Machine shop practice; Railroads—Shops; Repair shops; Waste removal
- Safety devices and measures**
- Ford methods and the Ford shops. F. L. Faurote. 11 Eng M 49:372-93 Je '15
- Glass chip guard and box. J. E. Cooley. diags Iron Age 95:1123 My 20 '15
- Safety first; Railway tool foremen's association discussion. 11 Ry Age (Mech ed) 89:412-13 Ag '15
- Safety organization of a machine shop. L. D. Burlingame. 11 Mach 22:203-9 N '15
- Sterilizing cutting oils. P. J. Artale. Iron Age 95:482 F 26 '15
- Workmen's co-operation reduces accidents. 11 Iron Age 95:1051-4 My 13 '15
- See also* Machinery—Safety devices
- Machine tool builders' association, National.**
See National machine tool builders' association
- Machine tool industry**
- Chinese machine shop of today. F. A. Foster. Iron Tr R 57:992+ N 18 '15
- Credit problems of tool builders. Iron Tr R 56:847 Ap 1 '15
- Hints on selling machine tools. Mach 21:367-8 Ja '15
- How to demonstrate machine tools. A. A. Dowd. 11 diag Iron Tr R 57:17-21 J1 '15
- How to use the sales engineer. A. A. Dowd. 11 diags Iron Tr R 56:459-63+, 667-72, 927-30+ Mr 4, Ap 1, My 6 '15
- Machine-tool builders' spring meeting. Iron Age 95:1173-8 My 27 '15
- Machine-tool contracts; confirmed credits and payments against inland shipping documents desired. Iron Age 95:741 Ap 1 '15
- Machine tool exports. Iron Age 96:193 J1 22 '15
- National machine tool builders' association annual convention, New York, Oct. 23-29. Iron Age 96:1060-3+ N 4 '15
- National supply and machinery dealers' association meeting, New York, Oct. 28. Iron Age 96:1101-2 N 4 '15
- National supply and machinery dealers' association meeting, New York, Oct. 28. Iron Tr R 57:908-9 N 4 '15
- Railways buy shop equipment. Iron Tr R 56:249-51 F 4 '15
- Selling machine tools abroad. Iron Tr R 56:466-8 Mr 4 '15
- Solving some war order problems. E. C. Kreutzberg. 11 Iron Tr R 57:433-6+ S 2 '15
- South American markets for machine tools. B. O. Hough. Mach 21:545-6 Mr '15
- Speeding up manufacture of machine tools. Iron Age 96:405-7 Ag 19 '15
- Machine tools**
- Adjustable and multi-cutting turning tools. A. A. Dowd. diags Mach 21:325-6 Je '15
- Adjustable and multi-cutting turning tools. F. H. Mayoh. diags Mach 21:302-3 D '14
- American railway tool foremen's association 7th annual convention. Ry R 57:115-17 J1 24 '15
- Automatic electrical tools. 11 Mach 22:245-6 N '15
- Automatic machine development. R. E. Flanders. 11 Iron Tr R 57:885-93+ N 4 '15
- Bullard multitatic machines Ford flywheel in 1 min. 44 sec. 11 Automobile 33:866 O 7 '15
- Conradson hydraulically operated, six-spindle, vertical, automatic chucking, boring and turning machine. 11 Iron Tr R 56:920-2 My 6 '15
- Don'ts for tool designers. E. J. Utz. Mach 22:43 S '15
- Electric power in the machine shop. A. L. De Leeuw. Iron Tr R 57:683-90+ O 7 '15
- Electrical appliances for workshops. 11 Engineer 119:474-6, 546-9 My 14, Je 4 '15
- 58-in. boring and turning mill. 11 Iron Age 96:461 Ag 26 '15; Iron Tr R 57:441+ S 2 '15
- Ford methods and the Ford shops. F. L. Faurote. 11 diags Eng M 49:184-201 My '15
- High speed steel tipped tools. J. W. Pike. 11 Ry Age (Mech ed) 89:590 N '15
- How machine tools and appliances are sized. F. Horner. Mach 21:487-9 F '15
- Improved method of facing and counterboring. O. A. Webster. diag Mach 21:409 Ja '15
- Machine tool development discussed by mechanical engineers. Iron Tr R 56:879 Ap 29 '15
- Machine-tool developments of 1914; abstract. L. P. Alford. Am Soc M E J 37:414-15 J1 '15
- Machine tool equipment of the new locomotive repair shops, Chicago & Alton R. R., Bloomington, Ill. plans Ry R 56:79-82 Ja 16 '15
- Machine-tool performance diagnosis: lessons of the power-time characteristic and value of automatic records on analyzing productive operations. Elec W 65:417-18 F 13 '15
- Machinery for the production of projectiles. 11 diags Engineer 119:572-6, 599-602, 634-6; 120-3, 116-17, 278, 338-9 Je 11-J1 2, 30, S 17, O 8 '15
- Machines for making projectiles. 11 Iron Tr R 56:383-4+ F 18 '15
- Machines for Warner gear making. 11 Automobile 32:1129 Je 24 '15
- Machining irregular contours. A. A. Dowd. diags Mach 21:536-43 Mr '15
- Machining shrapnel shells. D. T. Hamilton. 11 Mach 21:519-39 Ap '15; Same abr. Sci Am S 80:12-13 J1 3 '15
- Making aero motor pistons: tool equipment used on Cleveland automatics. D. T. Hamilton. 11 diags Mach 21:300-2 D '14
- Making cartridge cases. D. T. Hamilton. 11 diags Mach 21:651-6 Ap '15; Excerpt. Sci Am S 80:29-30 J1 10 '15
- Making fuse parts. 11 diags Mach 21:641-50 Ap '15
- Making vertical forming tools: practice of the Windsor machine co. C. F. Schlegel. 11 diags Mach 21:265-71 D '14
- Manufacture of chain. F. H. Mayoh. 11 diags Mach 21:719-23 My '15
- Power formulas for machine tools. A. D. DuBois. Elec W 65:928-33 Ap 10 '15
- Progress in machine shop methods. E. R. Norris. 11 Iron Tr R 57:879-82+, 747-50 O 7-14 '15
- Quadruple tool for planing shoes and wedges. E. A. Murray. 11 diags Ry Age (Mech ed) 89:584 N '15
- Shall we use wide or narrow guides? S. C. Bliss. diag Mach 22:147 O '15
- Special jigs for locomotive repair shops. 11 diags Ry Age (Mech ed) 89:409-12 Ag '15
- Three projectile machines. 11 Iron Age 95:402-3 F 18 '15
- Tools for making a double-pronged rivet. 11 diags Mach 21:299 D '14
- Value of specialization in factory. A. A. Dowd. 11 diags Iron Tr R 57:259-63 Ag 5 '15
- See also* Abrasives; Bending machines; Centering machines; Chucks; Cutting machines; Drilling and boring machinery; Electric driving; Grinding and polishing; Grinding machines; Hobbing; Lathes; Machine shop practice; Milling machines; Planing machines; Pneumatic tools; Punching machinery; Reamers; Screw machines; Shears; Tapping machines; Thread cutting machines; Tool steel; Wire-working machinery; Woodworking machinery
- Depreciation**
- Depreciation of machine tools: abstract. Ind Eng 14:409 O '14
- See also* Machinery—Valuation
- Failures**
- Cause of high speed steel tool failures. G. J. Brunelle. Ry Age (Mech ed) 89:369-70 J1 '15

Machine tools—Continued

Fixtures

- Adjustable wedge stop in jig and fixture design. R. E. McCoy. *diags Mach* 21:895-9 JI '15
- Assembling fixture for Franklin front and rear axles. *l Mach* 21:577 Mr '15
- Attachment for drilling small pieces. *l Iron Age* 95:669 Mr '15
- Clamping devices for jigs and fixtures. S. Helweg. *diags Mach* 21:578-9 Mr '15
- Compensating and quick-acting clamping devices. A. A. Dowd. *diags Mach* 21:355-9 Ja '15
- Drill fixtures for motor truck parts. C. T. Schaefer. *diags Horseless Age* 34:1818-19 D 2 '14
- Economical fixture design. A. B. Babbitt. *diags Mach* 22:145-6 O '15
- Fixture for grinding threading tool cutters. C. Grilley. *diags Mach* 22:53 S '15
- Fixture for machining moving-picture machine cross-pins. H. G. Thayer. *diags Mach* 21:922-3 JI '15
- Fixtures for continuous milling. A. B. Bachmann. *l diags Mach* 21:351-4 Ja '15
- Floating principle as applied to fixture work. A. A. Dowd. *diags Mach* 21:701-7 My '15
- General utility vise for drill presses. *l Ry Age (Mech ed)* 89:255-6 My '15
- Index drilling and tapping attachment for Brown & Sharpe automatic screw machine. W. F. Gradioph. *l diags Mach* 21:289-90 D '14
- Interchangeable locating and clamping accessories. *l diags Mach* 21:727-8 My '15
- Jig and fixture design. *diags Mach* 21:580-1 Mr '15
- Jig and fixture mechanisms. G. M. Meyncke. *diags Mach* 21:970-4 Ag '15
- Milling fixture with a knock-out attachment. F. W. Barrows. *diags Mach* 21:410 Ja '15
- Multiple thread chasing fixture. R. C. MacLachlan. *diags Mach* 22:233 N '15
- Providing for up-keep in designing jigs and fixtures. A. A. Dowd. *diags Mach* 22:12-15 S '15
- Safety first; its application to the design of machine fixtures. A. A. Dowd. *diags Eng M* 49:679-89 Ag '15
- Square-end milling fixture. O. A. Webster. *l diags Mach* 21:1009 Ag '15
- Three adaptable milling fixtures. C. F. Meyer. *l diags Mach* 21:962-5 Ag '15

See also Indexing fixtures; Mandrels

History

- Machines with which machines are made; a brief history. *l Sci Am* 112:538-9 Je 5 '15

Manufacture

- Illinois Central tool system; standardization and distribution include a central tool room with an accurate cost system. O. D. Kinsey. *l Ry Age (Mech ed)* 89:361-4 JI '15
- Interchangeability. J. P. Brophy. *Mach* 21:967-8 Ag '15

Repair

- Handling of repair work in the factory. A. A. Dowd. *Iron Age* 95:994-5 My 6 '15
- Machine unit system. See Machine expense
- Machine work

Cost

- Effect of design on the cost of machining. A. A. Dowd. *diags Mach* 21:273-7 D '14

Mechanism

- Efficiency in the purchase of machinery. E. C. Stueler and W. C. Nisbet. *Ind Eng* 14:337-8 Ag '14; Same. *Mach* 21:549 Mr '15
- Heavy machinery used in building automobiles. *Sci Am S* 80:279 O 30 '15
- How to reduce machine friction. N. G. Near. *Metal Ind n s* 13:409 O '15
- Recent legal decisions involving machinery. *Mach* 21:979; 22:27 Ag-S '15
- Thinking machine planning and theories. S. B. Russell. *l Sci Am* 115:246+ S 13 '15
- Watching distant machines from a desk. H. T. Wade. *l Sci Am* 112:161-2 F 18 '15

See also Agricultural machinery; Bearings; Belting; Bookbinding machinery;

Brakes; Calculating machines; Casting machines; Cement machinery; Conveying machinery; Cranes, derricks, etc.; Crank-pins; Crankshafts; Crushing machinery; Cylinders; Drilling and boring machinery; Dyeing machines; Electric engineering; Electric machinery; Engineering; Engines; Engraving machines; Excavating machinery; Fans, Mechanical; Fitting (machinery); Forging machinery; Foundry machinery; Friction; Gearing; Grinding machines; Hoisting machinery; Hydraulic machinery; Joints; Keyseating machines; Knitting machinery; Lathes; Locomotives; Looms; Lubrication and lubricants; Machine shop practice; Machine tools; Metal working machinery; Milling machines; Mining machinery; Nameplates; Paving machinery; Planing machines; Power transmission; Printing machinery; Printing presses; Pulleys; Pumping engines; Pumps; Refrigeration and refrigerating machinery; Road making machinery; Screw machines; Shafting; Shafts; Shovel machines; Steam engines; Testing machines; Textile machinery; Thread cutting machines; Turbines; Type-setting machines; Valves; Water wheels; Windmills; Wire-working machinery; Wood-working machinery; Woolen and worsted machinery

Design

- Adjustable wedge stop in jig and fixture design. R. E. McCoy. *diags Mach* 21:895-9 JI '15
- Aids to designing; proportioning the machine to the size of the man. *diags Sci Am S* 80:292-3 N 6 '15
- Don'ts for tool designers. E. J. Utz. *Mach* 22:43 S '15
- Effect of design on the cost of machining. A. A. Dowd. *diags Mach* 21:273-7 D '14
- Floating principle as applied to fixture work. A. A. Dowd. *diags Mach* 21:701-7 My '15
- Machine design in a Rhode Island school. W. E. Freeland. *l diags Iron Age* 96:1105-7 N 11 '15
- Plotting the involute curve. J. Edgar. *diags Mach* 21:480-2 F '15
- Sectional views of ribs and symmetrical parts. C. L. Svensen. *diags Mach* 21:790-1 Je '15
- Use of continued fractions in mechanical problems. W. W. Johnson. *l diags Mach* 21:802-4 Je '15

See also Ball bearings; Bearings; Belting; Bolts and nuts; Cams; Clutches; Drafting room practice; Gearing; Machine shop practice

Exhibitions

- Manufacturers' exhibits at the Panama-Pacific exposition. *Elec W* 65:833-6 Mr 27 '15
- Mechanical engineering at the Panama-Pacific international exposition. G. W. Dickie. *l Am Soc M E J* 37:592-600 O '15
- Outline of exhibits of products of mechanical engineering at the Worlds' fair at San Francisco. *l Iron Age* 96:142-9 JI 15 '15
- Panama-Pacific international exposition. *l Power* 41:250-6 F 23 '15

Fitting

See Fitting (machinery)

Foundations

- Anchoring foundation bolts in concrete. T. Croft. *diag Power* 41:841 Je 22 '15
- Concrete engine foundations. H. C. Campbell. *Elec W* 66:865 O 16 '15
- Concrete filling for engine beds and machine frames. F. W. Salmon. *l Power* 41:94 Ja 19 '15
- Concrete foundations for farm engines. Concrete Cem 7:184 N '15
- Constructing foundations for electrical machinery. N. G. Meade. *diag Power* 42:439 S 28 '15
- Foundations for jar-ramming molding machines. E. S. Carman. *l diags Foundry* 43:420-3 O '15; Same. *Iron Tr R* 57:1180-3 D 16 '15
- Installing rolling-mill anchor bolts. A. Connely. *diags Iron Age* 96:296-7 Ag 5 '15

Machinery—Continued**Manufacture**

Shop system of the American machine & foundry co. E: K. Hammond. *diags Mach* 21:446-50 F '15

Safety devices

Gear guard for lathes. S. K. Eastwood. *diag Iron Age* 95:948 Ap 29 '15
Grinding safety devices. C: G. Smith. *Iron Age* 94:1392 D 17 '14
Guarding of shafting. *Il Ry R* 56:220-1 F 13 '15
Safety feed increases production of punch press. *Il Iron Age* 95:1333-4 Je 17 '15
Safety first; its application to the design of machine fixtures. A. A. Dowd. *diags Eng M* 49:679-89 Ag '15

See also Cranes, derricks, etc.—Safety devices; Grinding machines—Safety devices; Machine shops—Safety devices and measures; Saws—Safety devices

Testing

Power plant testing. W. M. Selvey. *diags Engineer* 118:555-6 D 11 '14

Valuation

Valuation of machine tools. G: L. Colburn. *Mach* 21:708-9 My '15

Machinery, Automatic

Automatic machine development. R. E. Flinders. *Il Iron Tr R* 57:885-93+ N 4 '15; Abstract. *Iron Age* 96:1179 N 18 '15
Torres and his remarkable automatic devices. *Il diags Sci Am S* 80:296-8 N 6 '15.

Machinery Industry

Comparison card for cost departments. H. A. Russell. *Iron Tr R* 57:793 O 21 '15
Engineering openings in Russia. *Sci Am* 119:331 Ap 8 '15
How to sell tools to the government. L. W. Moffett. *Il Iron Tr R* 56:1101-5 Je 3 '15
Huge iron, steel and machinery exports. *Iron Age* 95:833 O 14 '15
Machinery exhibitors at the Panama-Pacific international exposition. *Iron Age* 95:654-5 Mr 18 '15
Machinery markets, 1914. *Iron Age* 95:124-30 Ja 7 '15
Machinery trade with South America. J. A. Massel. *Iron Age* 96:1128-9 N 11 '15
Manufacturers' instruction cards helpful. F. W. Fisher. *Power* 42:418 S 21 '15
Openings for American machinery. J. A. Massel. *Iron Tr R* 57:707 O 7 '15
War rescues machinery market. *Iron Tr R* 56:104+ Ja 7 '15

See also Bookbinding machinery

Machines. See Machinery**Machines, Centrifugal. See Centrifugal machines****Machining. See Machine work****Machinists**

Employment of women as machinists. *Il Engineer* 120:218 S 3 '15

Machinists' tools

Group of machinists' fine tools. *Il Iron Age* 95:1011 My 6 '15

McKeesport, Pennsylvania**Water supply**

Six years of softened and purified water at McKeesport, Pa. E: C. Trax. *Eng & Contr* 44:137-8 Ag 25 '15

McKim, Charles Follen, 1847-1909

Personal reminiscences of Charles Follen McKim. G. Brown. *por Arch Rec* 33:575-82, 681-9 N-D '15

McMurty, George Gibson, 1838-1915

Founder of Vandergrift, dies at Atlantic City. *por Iron Tr R* 57:303 Ag 12 '15

Sketch. R. A. Walker. *por Iron Age* 96:366-7 Ag 12 '15

Macon, Georgia**Streets**

Methods and costs of constructing the Bay street underpass at Macon, Ga. C. H. Fuller. *Il diags Concrete Cem* 6:75-8 F '15

Madras, India**Water supply**

New waterworks at Madras. *Il diags map Engineer* 119:58-9, 78-81 Ja 15-22 '15

Magic squares

Magic squares. W. G. Swart. *Sci Am S* 78:406 D 26 '14

Magnallum

Reclamation of magnallum from turnings. J: Coulson. *Metal Ind n s* 13:455-7 N '15; Abstract. *Am Soc M E J* 37:655-6 N '15

Magnesite

Effect of steam upon magnesite brick or calcined magnesite. R. H. Youngman. *J Ind & Eng Chem* 6:1037 D '14

Magnesia cement. C. H. B. Burlin. *Engineer* 119:471-2 My 14 '15

Occurrence, preparation and use of magnesite. L. C. Morganroth. *Il Am Inst Min E Bul* 93:2345-52 S '14; Same cond. *Iron Tr R* 55:622 O 29 '14; Summary. *Iron Age* 94:832 O 15 '14; Discussion. *Am Inst Min E Bul* 100:865-7 Ap '15

Magnesium carbonate

Solubility of magnesium carbonate in natural waters. R. C. Wells. *Am Chem Soc J* 87:1704-7 J1 '15

Solubility-product constant of calcium and magnesium carbonates. J: Johnston. *Am Chem Soc J* 87:2001-20 S '15

Magnesium chloride

Sulfate method for standardizing a magnesium salt solution. C. W. Foulk and O. R. Sweeney. *diags Am Chem Soc J* 36:2360-72 N '14

Magnesium silicate

Comparison of silicates and carbonates as sources of lime and magnesia for plants. W. H. MacIntire and L. G. Willis. *Il J Ind & Eng Chem* 6:1005-8 D '14

Magnesium sub-oxide

Electrolytic preparation of magnesium. F. C. Frary and H. C. Berman. *Met & Chem Eng* 13:324 My '15

Magnetic chucks. See Chucks, Magnetic**Magnetic Induction**

Temperature coefficient of magnetic permeability within the working range. R. L. Sanford. *U S Bur Stand Bul* 12:1-10 O 28 '15; Excerpts. *Sci Am S* 79:283 My 1 '15

Magnetic measurements

Decomposing magnetic fields into their higher harmonics. H. Weichsel. *Am Inst E E Pro* 34:2437-54 O '15

Experiments with a plunger electromagnet; determining the pull on the plunger when it is in motion. B. C. Batcheller. *diag Elec W* 65:1037-9 Ap 24 '15

Koepsel permeameter. C: W. Burrows. *Il diags U S Bur Stand Bul* 11:101-30 N 15 '14; Abstract. *Elec W* 65:95-6 Ja 9 '15; Summary. *Sci Am S* 79:197 Mr 27 '15

Reluctance of some irregular magnetic fields. J: F. H. Douglas. *diags Am Inst E E Pro* 34:867-925 My '15; Discussion. 34:3078-86 D '15

Unsymmetrical hysteresis loop. J: D. Ball. *Am Inst E E Pro* 34:3275-97 O '15

See also Magnetic induction

Magnetic separation of ores

Electromagnetic ore separation. I. C. Clark. *diags Eng & Min J* 99:533-8 Mr 20 '15

Electromagnetic zinc-ore treatment by the Campbell process. L. E. Ives. *Il diags Eng & Min J* 99:979-80 Je 5 '15

Magnetic separation of zinc-iron sulphide ores. *Il Met & Chem Eng* 13:573 S 1 '15

New magnetic iron-ore separator. *diag Iron Age* 96:577 S 9 '15

Magnetic separators

Dings magnetic separator. *Il Metal Ind n s* 13:475 N '15

Electrical appliances for workshops. *Il Engineer* 119:570 Je 11 '15

Portable magnetic separator outfit. *Il Elec R & W Elec'n* 87:441 S 4 '15; Met & Chem Eng 13:770 O 15 '15

Magnetic surveying

Magnetic survey of the globe. *Sci Am* 113:244 S 18 '15

Magnetic surveying—Continued

- What the dip needle can and cannot do. C. A. Chensy, Jr. Eng & Min J 100:193-4 J1 31 '15
 What the dip needle can and cannot do. W. O. Hotchkiss. Eng & Min J 100:363 Ag 28 '15

Magnetic testing

- Iron-cobalt alloy, Fe_2CO , and its magnetic properties. T. D. Yensen. Il Gen Elec R 18: 881-7 S '15

Magnetic transmission. See Automobiles—Transmission**Magnetism**

- Application of the electron theory to various phenomena. J. P. Minton. Gen Elec R 18:287-9 Ap '15
 Effect of chemical composition upon the magnetic properties of steels. W. E. Ruder. Gen Elec R 18:197-203 Mr '15
 Magnetic and other properties of electrolytic iron melted in vacuo. T. D. Yensen. pl Am Inst E E Pro 34:237-61 F '15
 Magnetic properties of some iron alloys melted in vacuo. T. D. Yensen. Il diag Am Inst E E Pro 34:245-95 O '15
 Magnetic studies of mechanical deformation in certain ferromagnetic metals and alloys. H. Hanemann and P. D. Merica. Il Am Inst Min E Bul 108:2371-85 D '15
 Modern theories of magnetism. G. F. Stradling. J Fr Inst 180:173-98 Ag '15
See also Electricity; Electromagnets; Hysteresis; Magnetic measurements; Magnetic separation of ores; Magnetization

Magnetism, Solar

- Flammarion talks on the sun. Sci Am 112:146-8 F 6 '15

Magnetization

- Magnetic behaviour of iron under alternating magnetization of sinusoidal wave-form. N. W. McLachlan. diags Inst E E J 53:309-19 Je 15 '15
 Magnetization by rotation. S. J. Barnett. Sci Am S 80:201 S 25 '15
 Magnetization curves. J. D. Ball. Gen Elec R 18:31-5 Ja '15
 Magnetization of iron at high flux density with alternating currents. J. S. Nicholson. Inst E E J 53:248-57; Discussion. 53:257-63 F 1 '15
 Representation of the total losses in iron, due to alternating magnetization, by an expression of the form $W = cB^n$. N. W. McLachlan. Inst E E J 53:350-5 Mr 1 '15

Magnetos

- British magneto. Engineer 119:140 F 5 '15
 Combined battery and magneto systems. P. M. Heldt. diags Horseless Age 35:312-15 Mr 3 '15
 Elsemann brings out magneto for sixes. Il Automobile 32:467 Mr 11 '15
 Elsemann flexible magneto coupling. Il Automobile 32:335 F 18 '15
 Founding magneto industry in France. Automobile 33:51-2+ J1 8 '15
 Gear-driven Bosch magneto for Ford. Il Automobile 31:1264 D 31 '14
 High tension magneto. P. M. Heldt. diags Horseless Age 35:210-12 F 10 '15
 High-tension magneto with automatic control. C. J. Morrison. Automobile 32:21 Ja 7 '15
 Magneto and coil ignition. P. M. Heldt. diags Horseless Age 35:178-81 F 3 '15
 Magneto generator. P. M. Heldt. diags Horseless Age 34:822-3 D 3 '14
 Magneto spark vs. battery-coil spark. D. H. Cunningham. Automobile 31:1020-3 D 3 '14
 Magneto vs. battery coil—from automobile drivers' viewpoint. C. S. Manierre. Automobile 32:20-1 Ja 7 '15
 Magnetos for 1915. Il diags Automobile 32: 160-6 Ja 21 '15
 Questions on Ford magneto. Automobile 31: 1116 D 17 '14
 Recharging magneto magnets. R. J. Everest. Il Automobile 32:414-15 Mr 4 '15
 Spark-plug ignition systems. A. H. Israel. diags Power 41:258-60 F 23 '15
 Spark timing methods. P. M. Heldt. Il diags Horseless Age 35:274-7 F 24 '15
 Special types of magnetos—care and adjustment. P. M. Heldt. diags Horseless Age 35: 246-9 F 17 '15

- Splitdorf announces twelve-cylinder magneto. Il diags Automobile 33:19-21 J1 1 '15
 Storage battery charging—magnet recharging. P. M. Heldt. Il diags Horseless Age 35:445-6 Mr 31 '15
 Wiring diagram for Remy magneto. diag Horseless Age 35:339 Mr 10 '15

Manufacture

- Elsemann's train-dispatcher system. J. E. Schipper. Il plans Automobile 32:580-5 Ap 1 '15

Mahan, Alfred Thayer, 1840-1914

- Admiral Mahan. Sci Am 111:486 D 12 '14

Mail handling

- C. & A. R. R. adopts automatic mail exchange. Il Eng N 74:669-70 S 30 '15
 Expansion of electric-vehicle business in Boston; mail delivery. Il Elec R & W Elec'n 67:277-8 Ag 14 '15
 Hupp automatic mail exchange system. Il diags Ry R 57:436-40 O 2 '15
 Mechanical equipment of the Grand Central post office. H. T. Wade. Il Sci Am 113:232-3 S 11 '15
 Opportunity for electric vehicles in mail service. Elec W 65:566-7 F 27 '15
 Telegraph traffic and power plant for pneumatic tubes in post offices; abstract. A. B. Mason. Am Soc M E J 37:418-19 J1 '15

Mail order business

- Kansas City building of Montgomery Ward & co. Il plan Arch & Bldg 47:35-40 Ja '15

Maine master plumbers' association

- Convention in Augusta, Me., on February 9th. Dom Eng 70:244-5 F 20 '15

Maintenance of way master painters' association

- Abstract of papers and discussions presented at the meeting held November 17-19, 1914, at Detroit, Mich. Ry Age 57:1137-41 D 18 '14
 12th annual convention, St. Louis, Oct. 19-21. Ry Age 59:968-9 N 19 '15

Make-ready. See Printing, Practical—Press-work**Make-up (printing). See Printing, Practical—Imposition, etc.****Malaria**

- Malaria and the transmission of diseases. R. Rosa. Sci Am S 79:50-1 Ja 23 '15

Malleable castings. See Iron founding**Malleable iron. See Cast iron****Malt**

- Acid ratio: a new method for determining the proteolytic strength of germinated grain in technical analysis. C. A. Nowak. J Ind & Eng Chem 7:858-9 O '15

Malt amylase

- Comparison of certain properties of pancreatic and malt amylase preparations. H. C. Sherman and M. D. Schlesinger. Am Chem Soc J 37:1805-19 My '15

- Further experiments upon the purification of malt amylase. H. C. Sherman and M. D. Schlesinger. Am Chem Soc J 37:643-8 Mr '15

- Influence of certain acids and salts upon the activity of malt amylase. H. C. Sherman and A. W. Thomas. Am Chem Soc J 37: 623-43 Mr '15

Malting plants

- Electricity in malting houses; relative merits of isolated-plant and central-station service. Il Elec R & W Elec'n 65:1123-8 D 12 '14

Maltose

- Structure of maltose and its oxidation products with alkaline peroxide of hydrogen. W. L. Lewis and S. A. Buckborough. Am Chem Soc J 36:2385-97 N '14

Maltose octacetate

- Isomeric alpha and beta octacetates of maltose and of cellose. C. S. Hudson and J. M. Johnson. Am Chem Soc J 37:1276-80 My '15

Man

- Man's development illustrated at San Diego; busts depict the earliest known human beings. A. H. Wright. Il Sci Am S 80:332 N 20 '15

Man, Prehistoric

- Mankind in the making. W. P. Fycraft. Il Sci Am 112:100-1 Ja 30 '15

Man, Prehistoric—Continued

Prehistoric man and his early efforts to combat disease. T. W. Parry. *Il Sci Am S* 78:365-6 D 5 '14

Management. See **Factory management**; **Foundry management**; **Machine shop management**; **Mine management**; **Office management**; **Railroads—Management**; **Scientific management**; **Shop management**

Mandrels

Air-operated chucks and mandrels. E. F. Lake. *Il diag Mach* 21:476-9 F '15
Mandrels for turning parallel surfaces. A. E. Blofield. *Il Mach* 21:340 D '14

Manganese

Analoid method for the determination of manganese in steel, iron ore and slag. Met & Chem Eng 12:793-4 D '14

Determination of manganese in ferrovandium. W. V. Clark. Met & Chem Eng 13:155-6 Mr '15

Manganese flour as surface hardener. Foundry 42:490 D '14

Manganese-ore supplies. Eng & Min J 100:513 S 25 '15

Occurrence and significance of manganese in the seed coat of various seeds. J. S. McHargue. Am Chem Soc J 36:2532-6 D '14

Supply of manganese ore and ferro-manganese statistics. Met & Chem Eng 13:575 S 1 '15

War affects the manganese industry. Eng & Min J 100:195 JI 31 '15

War upsets manganese ore industry. Iron Tr R 57:485+ S 9 '15

Manganese bronze. See **Bronze**

Manganese chloride

Mixed crystals of ammonium chloride with manganese chloride. H. W. Foote and B. Saxton. Am Chem Soc J 36:1695-1704 Ag '14

Manganese dioxide

New method of preparation and some interesting transformations of colloidal manganese dioxide. E. J. Witzemann. Am Chem Soc J 37:1079-81 My '15

Manganese steel

Are the deformation lines in manganese steel twins or slip bands? H. M. Howe and A. G. Levy. 4 pls Am Inst Min E Bul 99:587-600; 108:1487-8 Mr, JI '15

Composition, uses, and manufacture. J. H. Hall. *diag J Ind & Eng Chem* 7:94-3 F '15; Same cond. Foundry 43:138-9 Ap '15

Designing manganese steel track work. V. Angerer. Ry Age 59:341-2 Ag 20 '15

Improved manganese steel. Mach 21:450 F '15

Manganese steel and the allotropic theory. A. Sauveur. *Il Am Inst Min E Bul* 93:2438-49 S '14; Abstract. Iron Tr R 55:1002 N 26 '14; Discussion. Am Inst Min E Bul 100:787-90 Ap '15

Manganese-steel castings in the mining industry. W. S. McKee. *Il diag Am Inst Min E Bul* 108:2399-2411 D '15; Same. Iron Tr R 57:1077-81 D 2 '15

Manganese-steel rails. R. Hadfield. *Il Engineer* 118:564 D 11 '14

Manganese steel special work. Elec Ry J 45:576-8 Mr 20 '15

Manganese steel track-work specifications. Elec Ry J 45:1118 Je 12 '15

Recent manganese steel crossings. C. L. Hawkins; E. P. Roundey. Elec Ry J 45:892 My 8 '15

Solid manganese steel crossings in Chicago. *Il diag Elec Ry J* 45:711-12 Ap 10 '15

Steel mill castings: use of manganese steel in heavy rolling mill equipment. G. Tripp. *Il Iron Tr R* 56:49-53 Ja 7 '15

Mangers

Construction of sanitary mangers in dairy barn at Troy, Pa. *Il diag Concrete Cem* 6:104-6 F '15

Manholes

Drains for manholes. *diag Elec W* 66:304 Ag 7 '15

Tile manholes for sewage plants. H. S. McGee. *diag Eng Rec* 72:55 JI 10 '15

Wiring and conduit work at the Panama-Pacific exposition. A. A. Willoughby. *Il diag Elec R & W Elec'n* 67:365-8 Ag 28 '15

Manila, Philippine Islands**Rapid transit**

Manila company submits service brief. Elec Ry J 46:672-3 O 2 '15
Traffic count in Manila. Elec Ry J 46:395 S 4 '15

Manilla rope

Manilla rope fastenings. *Il Eng Rec* 70:706 D 26 '14; Abstract. *Ind Eng* 15:28-9 Ja '15

Manilla rope in railway service. F. E. Weise. Ry Age 59:758-9 O 22 '15

Mannose pentacetates

Isomeric pentacetates of mannose. C. S. Hudson and J. K. Dale. Am Chem Soc J 37:1280-2 My '15

Manometers

Measuring high vacuums; abstract. J. W. Woodrow. *diag Elec W* 65:36-7 Ja 2 '15

Studies of the vapor pressure of solutions; a static method for the determination of the difference between the vapor pressure of solution and that of solvent. J. C. W. Frazer and B. F. Lovelace. *diag Am Chem Soc J* 36:2439-49 D '14

Will Quiz, jr. *Il Power* 40:845-6 D 15 '14

Mansfield, Ohio**Sanitary affairs**

Proposed method of enclosing a stream in reinforced concrete conduit. C. L. Bushey. *diag Eng & Contr* 43:126-7 F 10 '15

Mantels

Concrete mantel made with pre-cast units. *Il diag Concrete Cem* 6:138 Mr '15

Detail of old mantel at Evergreen, Baltimore, Md.; measured drawings by Riggins Buckler. Brickb 24:37-8 F '15

Mantel in Crownshield Devereux house; drawings. Brickb 24:pl 4, Ap '15

See also **Fireplaces**

Mantles, Gas. See Gas mantles**Manual training**

See also **Trade schools**

Manufacturers

Liability of machinery manufacturers. A. L. H. Street. Iron Age 95:222-3 Ja 21 '15

Manufacturers, National association of. See **National association of manufacturers**

Manufactures

Census bureau no inquisition. Iron Age 95:823 Ap 8 '15

Fields of motor application. D. B. Rushmore. Am Inst E E Fro 34:1105-13 Je '15; Discussion. 34:3006-52 D '15

See also **Cars**; **Chemistry, Technical**; **Confectionery**; **Cost accounting**; **Cutlery**; **Factories**; **Gas manufacture**; **Leather**; **Machinery**; **Metals**; **Paper making and trade**; **Perfumery**; **Pottery**; **Prices**; **Scientific management**; **Soap**; **Steel industry**; **Textile industry and fabrics**; **Tubes**; **United States—Manufactures**; **Waste products**

Cost

Manufacturing expense distribution. N. T. Ficker. Eng M 49:321-6, 553-9, 862-71; 50:58-64, 264-61, 390-400 Je-JI, S-D '15

What constitutes overhead. E. H. Fish. Eng M 49:438-97 JI '15

Manuscripts, Preparation of

Preparation of copy. F. H. Teall. Inland Ptr 56:881-2 D '15

Map drawing. See Topographical drawing**Maple**

Commercial uses of sugar maple. H. Maxwell. *Il Am For* 21:1022-30 N '15

Sugar maple; identification and characteristics. S. B. Detwiler. *Il Am For* 21:1019-22 N '15

Maple sugar

Maple sugar making. *Il Am For* 21:1031-2 N '15

Maps

First complete official map of New York city. *Il Eng Rec* 71:666-7 My 22 '15

Lettering land sections for federal valuation maps. L. M. MacArthur. Eng Rec 72:490 O 16 '15

Maps—Continued

- Lettering land sections for federal valuation maps. L. W. Duffee. Eng Rec 71:814 Je 28 '15
- Mammoth new map of the city of New York. Eng N 73:981-2 My 20 '15
- Maps and map making. T. H. Holdich. Sci Am S 79:88-9 Ja 18 '15
- New York city's twenty-five foot map. C. W. Person. 11 Sci Am 112:375 Ap 24 '15
- Outgrowths of letterpress; modern mapmaking. G. Sherman. 11 Inland Ptr 55:321-7 Je '15
- See also* Railroads—Maps; Relief maps; Road maps
- Maps, Railroad. *See* Railroad maps
- Marage, René, 1859-
Photographing speech; some recent investigations by Dr. Marage. J. Boyer. 11 Sci Am 112:607-8 Je 19 '15
- Marble
Electrical equipment of the Vermont marble company. J. Liston. 11 Gen Elec R 18:1015-25 N '15
- Electricity in marble quarrying. 11 Elec R & W Elec'n 67:963-6 N 27 '15
- Marcy ball mill
Description. diag Eng & Min J 100:147 Jl 24 '15
- Margins (printing)
Margins. J. L. Frazier. Inland Ptr 55:65-8 Ap '15
- Marine boilers. *See* Boilers, Marine
- Marine borers. *See* Borers (animals)
- Marine draftsmen, American society of. *See* American society of marine draftsmen
- Marine engineering
Defects in installations of marine machinery and how they were remedied. S. Evasa. diags Int Marine Eng 20:507-9 N '15
- Latest developments in marine electrical engineering. H. A. Hornor. Int Marine Eng 20:201-8 My '15
- Marine engineering in 1914. Engineer 119:9, 11 Ja 1 '15
- Some hazardous experiences at sea. Int Marine Eng 20:271-3 Je '15
- See also* Boilers, Marine; Diesel engines, Marine; Diving, Submarine; Electricity on ships; Gas and oil engines, Marine; Marine engines; Naval architecture; Propellers; Ship propulsion; Shipbuilding; Steam turbines, Marine
- Study and teaching
Questions and answers for marine engineers. *See* monthly numbers of International marine engineering
- Marine engines
Interesting change in twin screw steamer. D. Sawyer. Int Marine Eng 20:176-8 Ap '15
- Lake passenger steamer Noronic. diags Int Marine Eng 20:431-5 O '15
- Relative advantages of turbines, Diesel engine and reciprocating steam engine drive. Int Marine Eng 20:223 My '15; Same. Sci Am S 80:86 Ag 7 '15
- Size of inboard bearings, proper design of crossheads and faults of lubricating systems. Int Marine Eng 19:566-7 D '14
- Small marine power plant. D. L. Roger. 11 Power 41:191 F 9 '15
- Submarine power plant. A. Hoar. 11 Sibley J 30:59-63 N '15
- Superheated steam in torpedo-boat engines. W. H. Miller. Sci Am 113:83-4 Jl 3 '15
- Thermodynamics of the marine engine: abstract. J. F. Wentworth. Int Marine Eng 20:17 Ja '15
- See also* Boilers, Marine; Diesel engines, Marine; Gas and oil engines, Marine; Marine engineering; Ship propulsion; Steam engines; Steam turbines, Marine
- Repair
Handy kinks for the engineer. Int Marine Eng 20:133-4 Mr '15
- Valve-spring jams pump-piston. diag Int Marine Eng 20:40 Ja '15
- Marine terminals. *See* Terminals
- Maritime law
Freedom of the seas. Sci Am 113:392 N 6 '15
- Light on the seamen's bill. Sci Am 113:58 Jl 17 '15
- Market buildings
Large market building at Worcester, Mass. 11 plans Brickb 24:191-2 Ag '15
- Pittsburgh's new market house. 11 Munic J 39:506 S 30 '15
- Plumbing system of public market station. 11 plan Metal Work 84:555-7 O 29 '15
- Markets, Municipal
Baltimore's municipal markets; statistics. Munic J 39:659 O 28 '15
- Chattanooga's municipal markets. 11 Munic J 38:12-13 Ja 7 '15
- New public markets in New York. 11 plans Munic J 38:587-90 Ap 29 '15
- Portland's permanent market. H. M. White. 11 Munic J 39:508 S 30 '15
- Marquise (architecture)
Marquise and its design. J. T. Fallon. 11 Arch Rec 38:555-61 N '15
- Mars
Canals of Mars. W. H. Pickering. Sci Am 113:249 S 18 '15
- Martin, Pierre-Emile, 1824-1915
Sketch. Sci Am S 79:407 Je 26 '15
- Martynia
Composition of the seeds of martynia Louisiana. E. H. S. Bailey and W. S. Long. J Ind & Eng Chem 7:867-8 O '15
- Marx, Charles David, 1857-
President of the Am. Soc. C. E. C. B. Wing. por Eng N 73:386- F 25 '15
- Marysville, Ohio
Sewerage
Sewage-treatment plant; screening, two-story sedimentation tanks, crushed-stone contact beds and intermittent sand filters. E. D. Barstow. Eng Rec 72:636-7 N 20 '15
- Masonic temples
Masonic temple, Pittsburgh, Pa. 11 Arch & Bldg 47:289-94 Ag '15
- Masonry
Dry masonry walls for highway embankments. 11 Eng Rec 70:687 D 26 '14
- Kensico dam construction in 1914. W. F. Smith. 11 plan Eng N 73:966-8 My 20 '15
- See also* Arches; Bricklaying; Bricks; Building; Concrete construction; Dams; Foundations; Plaster and plastering
- Mason's chutes
Pattern for construction of mason's chute. diags Metal Work 83:921-2 Je 25 '15
- Massachusetts gas and electric light commission
30th annual report. map Elec W 66:155 Jl 17 '15
- Massachusetts institute of technology
Concrete dome for the new Technology buildings. 11 Eng N 74:385-6 Ag 26 '15
- Course which gives broad training in business and economics. Eng Rec 72:323-4 S 11 '15
- Design and construction of Massachusetts institute of technology buildings. S. E. Thompson. 11 diags plan Concrete Cem 7:14-19 Jl '15; Same. Eng & Contr 43:513-18 Je 9 '15; Same cond. Eng Rec 71:748-50 Je 12 '15
- New Technology laboratory plans announced. plans Eng N 74:340-1 Ag 18 '15
- Pile tests indicate type of substructure for Technology buildings. C. T. Main. 11 Eng Rec 72:235-8 Ag 21 '15
- Power-plant equipment. Elec R & W Elec'n 67:854 N 6 '15; Same. Power 42:752-3 N 30 '15
- Preparatory school and after. Eng Rec 71:191 F 13 '15
- Scientific aeronautic research. J. C. Hunsaker. 11 Sci Am S 79:364-5 Je 5 '15
- Massachusetts state association of master plumbers
Annual convention, Boston, April 20. Dom Eng 71:133-5 My 1 '15
- Massage
Massage in the after-treatment of the wounded. J. B. Mennell. Sci Am S 80:353 D 4 '15

- Master boiler makers' association**
9th annual convention, Chicago, May 25-29. Ry Age 58:1129, 1165-9 My 28-Je 4 '15
9th annual meeting, Chicago, May 25-28. Ry Age (Mech ed) 89:309-17 Je '15
9th annual convention, Chicago, May 25-28. Ry R 56:781-4 My 29 '15
- Master car and locomotive painters' association**
46th annual convention, Detroit, Mich., Sept. 14-16. Ry Age 59:565-8 S 24 '15
46th annual convention, Detroit, Mich., Sept. 14-16. Ry Age (Mech ed) 89:539-42 O '15
- Master car builders' association**
Committees. Ry R 57:502-3 O 16 '15
49th annual convention, Atlantic City, June 14-16. Elec Ry J 45:1183-4 Je 19 '15
49th annual convention, Atlantic City, June 14. Ry R 56:832-42 Je 19 '15
President's address. D. F. Crawford. Ry R 56:837-8 Je 19 '15
- Master mechanics' association, American railway.** See American railway master mechanics' association
- Master plumbers, National association of.** See National association of master plumbers
- Master steam and hot water fitters, National association of.** See National association of master steam and hot water fitters
- Mastication**
Mastication and food utilization. Sci Am S 80:823 N 20 '15
Utilization of ingested protein as influenced by undermastication and overmastication. L. F. Foster and P. B. Hawk. Am Chem Soc J 37:1347-61 My '15
- Mastodon**
New mastodon. Sci Am S 80:259 O 23 '15
- Masts.** See Towers, Steel
- Mathematical instruments**
See also Calculating machines; Slide rule
- Mathematics**
Astronomical and mathematical research. Prof. Schlesinger. Sci Am S 79:168 Mr 13 '15
Mathematical coincidences. A. J. Lotka. Sci Am 113:210 S 4 '15
Mathematical coincidences. M. Mott-Smith. Sci Am 113:379 O 30 '15
Moment of inertia of a rectangle by elementary method. W. H. Gravelle. Eng N 73:1073 Je 3 '15
Where the mathematician could aid the astronomer. F. Schlesinger. Sci Am S 80:31-2 Jl 10 '15
See also Arithmetic; Astronomy; Calculating machines; Mechanics; Mensuration; Metric system; Multiplication; Numbers; Numerals; Surveying
- Formulas**
Methods of approximate integration. W. Whited. Eng N 73:840-2 Ap 29 '15
Model experiments and the forms of empirical equations. E. Buckingham. Am Soc M E J 37:531-2; Discussion. 37:532-4 S '15
- Matter.** See Atomic theory; Atoms; Capillarity; Chemistry; Compressibility; Dissociation; Dynamics; Elasticity; Electrons; Force and energy; Ions; Physics; Radioactivity; Specific gravity
- Mattresses (hydraulic engineering).** See Rivers—Regulation
- Mauna Loa**
Notes from a volcano laboratory; personal documents in the case of Kilauea and Mauna Loa. T. A. Jaggar, jr. Il Sci Am S 80:214-17 O 2 '15
- Maxicator**
Demand indicators; maxicator and printometer types. Il Munic J 38:906 Je 24 '15
- Maxim, Hudson, 1853-**
Sketch. por Eng M 50:201 N '15
- Mazda lamp.** See Electric lamps, Tungsten
- Meadville, Pennsylvania**
Streets
Paving work in Meadville. B. F. Miller, jr. Munic J 37:804 D 3 '14
- Measurement.** See Area measurement; Electric measurement; Gages; Gas measurement; Gas meters; Liquid meters; Measuring instruments; Mensuration; Meters; Micrometers; Pitot tube; Slide rule; Steam flow; Steam meters; Stream flow; Stream measurement; Surveying; Temperature—Measurement; Water flow; Water measurement; Water meters; Weights and measures
- Measurement of distances in war.** A. Keller. Il diags Sci Am S 79:324-5 My 22 '15
- Measurements, Magnetic.** See Magnetic measurements
- Measures.** See Weights and measures
- Measuring instruments**
Fine measuring tools for machinists. Il Sci Am S 80:28 Jl 10 '15
See also Interferometer; Micrometers; Slide rule; Square (instrument)
- Meat**
Meat supply of the United States. Sci Am 112:183 F 20 '15
- Mechanical draft**
Core-oven mechanical draft installation. Il diags Iron Age 96:1168-4 N 18 '15
Fan drafting as applied to locomotives. H. B. MacFarland. Il diags Ry Age 57:1119-22 D 13 '15; Same cond. Ry Age (Mech ed) 89:6-9 Ja '15; Abstract. Am Soc M E J 37:27-8 Ja '15; Abstract. Ry R 56:289-90 F 27 '15
Mechanical draft and smoke prevention. T. Tait. Dom Eng 73:232 N 20 '15
Mechanical draft and the évasé stack. A. M. de Bellis. diags Eng M 49:525-34 Jl '15
Notes on fans. A. A. Potter and S. L. Simmering. Power 41:816 Je 15 '15
See also Blower systems; Blowers; Fans, Mechanical
- Mechanical drawing**
Drafting room reforms. E. H. Fish. diags Eng M 48:752-5 F '15
Isometric drawings. D. A. Hampson. diags Power 41:785 Je 8 '15
Method of drawing an ellipse. A. W. Schoof. diags Mach 21:486-7 F '15
Suggestions for reading working drawings. F. West. Il diags Foundry 43:464-6 N '15
See also Architectural drawing; Drafting room practice; Drawing instruments; Geometrical drawing; Graphic statics; Perspective
- Mechanical engineering**
Mechanical engineering at the Panama-Pacific international exposition. G. W. Dickie. Il Am Soc M E J 37:592-600 O '15
Progress in the field of mechanical engineering during recent years. W. F. Durand. Am Soc M E J 37:viii-x O '15
See also Automobile engineering; Boilers; Electric engineering; Engineering; Engines; Friction; Hydraulic engineering; Joints; Locomotives; Lubrication and lubricants; Machine shop practice; Machine tools; Machinery; Marine engineering; Mechanical draft; Mechanics; Power plants; Power transmission; Steam engineering; Steam engines
- Mechanical engineers, American society of.** See American society of mechanical engineers
- Mechanical engineers, Institution of.** See Institution of mechanical engineers
- Mechanical handling**
Handling iron and cinder at the blast furnace. J. E. Johnson, jr. Il diags Met & Chem Eng 13:85-9 F '15
Handling materials in manufacturing plants. R. L. Streeter. Il diags Eng M 50:222-46, 401-23 N-D '15
Plant for handling scrap on the Boston & Albany. Il diags Ry Age 58:745-6 Ap 2 '15
Portable geared hand-power hoist. diags Eng N 74:864 O 28 '15; Eng & Min J 100:733 O 30 '15
- Scrap-handling plant of Boston & Albany railroad.** Il Eng Rec 70:651-2 D 12 '14
See also Ash handling; Blast furnaces—Charging; Coal handling; Concrete handling; Conveying machinery; Cotton handling; Cranes, derricks, etc.; Dumping appliances; Electric trucks in factories, freight terminals, etc.; Freight handling; Lifting magnets; Loading and unloading; Lumber handling; Mail handling; Ore handling; Rail handling; Slings and hitches; Trucks

- Mechanical movements**
Excavating machine that walks. *Il diag Sci Am* 118:88 J1 17 '15
Stop motion for moving picture machines. W. B. Morton. *diags Sci Am S* 79:396-7 Je 19 '15
Suggestions in mechanisms; some curious geometric properties of articulated levers. S. D. Mott. *Sci Am S* 80:77 J1 31 '15
- Mechanical stokers.** See *Stokers, Mechanical*
- Mechanical theory of life**
Is the organism a thermodynamic mechanism. J. Johnstone. *Sci Am S* 80:82-3, 106-7 Ag 7-14 '15
- Mechanics**
Analogies between electricity and mechanics. W. S. Franklin. *Met & Chem Eng* 13:317 My '15
Power required to stop an automobile. W. T. Francis. *Sci Am S* 78:406 D 26 '14
See also *Aeronautics; Deformations (mechanics); Dynamics; Elasticity; Engineering; Fluids; Force and energy; Friction; Gases; Graphic statics; Hydraulics; Load (mechanics); Machinery; Motion; Power; Pulleys; Steam engines; Strains and stresses*
- Mechanics' liens**
Right to lien for plans not used. A. L. H. Street. *Bldg Age* 37:57-8 Mr '15
- Mechanotherapy**
Mechanics of convalescence; methods of hastening the cure of German wounded soldiers. W. Bannard. *Il Sci Am* 112:404 My 1 '15
- Mediation and conciliation.** Board of. See *United States—Board of mediation and conciliation*
- Medical examinations.** See *Physical examinations*
- Medical folk-lore**
Curious cures. L. F. Hapgood. *Sci Am S* 80:331 N 20 '15
- Medical instruments and apparatus**
Apparatus for mechanical administration of anaesthetics. *Il Sci Am* 113:471-4 N 27 '15
- Medical research**
Scientific research in the public health service. *Sci Am* 112:284 Mr 27 '15
- Medical reserve corps.** See *United States—Army*
- Medicine, Military**
Trench frost-bite. L. Smith. *Sci Am S* 80:357-8 D 4 '15
See also *Surgery, Military*
- Medicine, Primitive**
Medicine of the Old Testament. S. B. Blakely. *Sci Am S* 80:70-1, 90 J1 31-Ag 7 '15
- Medieval architecture.** See *Architecture, Medieval*
- Meerschaum**
Meerschaum deposits of New Mexico. F. V. Bush. *Il map Eng & Min J* 99:941-3 My 29 '15
- Megrim.** See *Headache*
- Mellon Institute.** See *Pittsburgh university. Mellon Institute*
- Melting points**
Determining the melting points of asphalts. J. G. Miller and P. P. Sharples. *Eng & Contr* 43:87-8 Ja 27 '15
Melting point of copper alloys. H. W. Gillett and A. B. Norton. *Metal Ind n s* 13:228 Je '15
Melting points of chemical elements and other standard temperatures. *Met & Chem Eng* 13:302 My '15
- Memphis, Tennessee**
Bridges
Substructure for new Memphis bridge. M. B. Case. *Il Eng Rec* 71:518-20 Ap 24 '15; Same. *Ry Age* 58:377-81 Ap 23 '15; Same cond. *Ry R* 58:554-6 Ap 24 '15; Same cond. *Eng N* 73:792-3 Ap 22 '15
Politics and government
Commission and city manager forms of government. H. H. Rumble, R. W. Peatross and J. E. Burke. *Munic Eng* 49:53-4 Ag '15
Railroads
New I. C. station and track elevation at Memphis. *Il plan Ry Age* 58:179-81 Ja 29 '15
- Mendellism**
Heads and tails and heredity. E. Borel. *Il diags Sci Am S* 78:403-6 D 26 '14
- Mensuration**
Capacity of cylindrical tanks; a rapid means of determining the contents of tanks of all of the usual lengths and diameters. Horseless Age 36:76 J1 21 '15
Table of angular deflections in decimals of feet. C. H. Biffert. *Eng N* 74:1087 D 2 '15
See also *Area measurement; Metric system; Surveying; Weights and measures*
- Mental diseases**
Pathology of mental disorders. E. Goodall. *Sci Am S* 79:306-7, 335-6 My 15-22 '15
See also *Nervous system—Diseases*
- Mental tests.** See *Ability tests*
- Menu cards**
Specimens. *Inland Ptr* 55:64a-64h Ap '15
- Mercantile law.** See *Commercial law*
- Mercaptopyrimidines**
Researches of pyrimidines: alkylation of 2-mercaptopyrimidines. T. B. Johnson and H. W. Haggard. *Am Chem Soc J* 37:177-83 Ja '15
Researches on pyrimidines; the alkylation of 2-mercaptopyrimidines. T. B. Johnson and R. C. Moran. *Am Chem Soc J* 37:2591-7 N '15
- Merchant marine.** See *Shipping—United States*
- Merchants**
Human nature and unsuccessful shop management. R. T. Gabler. *Metal Work* 82:823-4 D 25 '14
Training and holding competent employees. F. Mappes. *Metal Work* 82:731-3 D 4 '14
See also *Business*
- Mercuric chloride**
Association of mercuric chloride in water solution. G. A. Linhart. *Am Chem Soc J* 37:258-74 F '15
Rate of reduction of mercuric chloride by sodium formate. G. A. Linhart. *Am Chem Soc J* 37:70-6 Ja '15
- Mercury**
Amalgamation tests. W. J. Sharwood. *Am Inst Min E Bul* 104:1659-70 Ag '15; Excerpts. *Met & Chem Eng* 13:927 D 1 '15
Cinnabar in western Nevada. *Eng & Min J* 100:668 O 23 '15
Measurement of oxidation potentials at mercury electrodes; the stannic-stannous potential. G. S. Forbes and E. P. Bartlett. *Am Chem Soc J* 36:2030-40 O '14
Mercury assay. S. Fischer, Jr. *diags Met & Chem Eng* 12:774 D '14
Mining and reduction of quicksilver ore at the Oceanic mine, Cambria, Cal. C. A. Heberlein. *diags Am Inst Min E Bul* 98:497-504 F '15; Discussion. 101:1189-41 My '15
New Almaden quicksilver mine. R. G. Place. *Il Eng & Min J* 100:465 S 18 '15
Nickel, copper and mercury as affected by the war. *J Ind & Eng Chem* 7:71-2 Ja '15
Production of quicksilver in the United States in 1914. *Eng & Min J* 99:68 Ja 9 '15
Recovery of mercury from amalgamation tailing, Buffalo mines, Cobalt. E. B. Thornhill. *flow sheet Am Inst Min E Bul* 104:1653-7 Ag '15; Abstracts. *Met & Chem Eng* 13:330-1, 373, 396 My, N 15-D 1 '15; Discussion. *Am Inst Min E Bul* 108:2455 D '15
See also *Amalgams*
- Mercury boilers.** See *Boilers, Mercury*
- Mercury compounds**
Salts of the halogenoacetic acids. W. G. Bateman and D. B. Conrad. *Am Chem Soc J* 37:2557-60 N '15
- Mercury vapor rectifier.** See *Electric current rectifiers*
- Mergelynck museum.** See *Ypres, Belgium*
- Merö**
Merö the royal city of Ethiopia. *Sci Am S* 79:98 F 13 '15
- Merriman, Mansfield, 1848-**
Head of American society for testing materials. *por Iron Tr R* 56:1331 Je 24 '15
- Mesabi range.** See *Iron mines and mining—Minnesota*

- Mesothorium**
Monazite, thorium, and mesothorium. K. L. Kithill. biblog flow sheet U. S. Bur Mines Tech Pa 110:1-30 '15
- Messhouses.** See Construction camps
- Mestre, Italy**
Bridges
Design and construction of provincial highway bridge at Mestre, Italy. A. M. Wolf. diags Concrete Cem 6:294-6 Je '15
- Metabolism**
Dynamic conception of the organic individual. Sci Am 118:120 Ag 7 '15
Pathology of mental diseases. El. Goodall. Sci Am S 79:835-6 My 22 '15
- Metal cleaning**
Removing grease by electricity; the modern way to prepare metal articles for plating operations. T. Brown. Metal Ind n s 13:192-4 My '15
- Metal coating**
Development and perfection of Schoop metal spray. II Sci Am 113:362+ Ap 17 '15
Metal spray processes in engineering and art; with cost tables. J. Calder. II diags Am Soc M E J 37:378-83 Jl '15; Abstract. Eng M 49:924-6 S '15
Metal spraying process for coating ornamental products. II Concrete Cem 6:56 Ja '15
Metal spraying process of protecting metal against corrosion. II diag Eng & Contr 42:326-7 S 30 '15
Method of coating iron or steel with lead. Am Gas Light J 103:292 N 8 '15
Plating by impact; Jenkins process. Am Gas Light J 103:253 O 18 '15
Plating by shooting. II Sci Am 113:84 Jl 24 '15
Producing protective coatings by the Schoop metal spraying process. R. K. Morcam. diags Horseless Age 24:827-8 D 2 '14
Protective coatings for metal. H. B. C. Allison. Gen Elec R 18:878-80 S '15; Same. Eng & Contr 44:263-4 O 6 '15
Schoop metal-spraying pistol. R. K. Morcam. Eng & Min J 100:193 Jl 31 '15
Spray process for the production of metallic coatings. Am Gas Light J 102:28-9 Ja 11 '15
Spraying shrapnel shells. II Iron Age 96:355 Ag 12 '15
See also Galvanizing; Plating
- Metal coloring**
Metal coloring by the corrosion process. El. Blassett, Jr. Metal Ind n s 13:17 Ja '15
Pullman finish. Metal Ind n s 13:260 Je '15
- Metal corrosion.** See Corrosion and anti-corrosives; Metal protection
- Metal cutting**
Cutting aluminum rapidly on a buzz planer. J. Fr. Inst 180:634 N '15
Cutting tools. II Engineer 119:275-7 Mr 19 '15
Diagram for determining cutting time. I. Schebeck. Mach 21:478 F '15
Duplex cold metal cutting-off machine. II Iron Age 95:503 Mr 4 '15
High temperature flames in metal working. H. R. Swartley, Jr. Iron Age 96:1122 N 11 '15
Oxy-acetylene welding and cutting equipment. S. W. Miller. II diags Mach 22:86-99 O '15
Profile milling and grinding. El. Lea. II diags Mach 21:821 Je '15
Progress in machine shop methods. E. R. Norris. II Iron Tr R 57:679-82+, 747-50 O 7-14 '15
See also Cutting machinery; Gear cutting; Milling cutters; Oxyacetylene flame; Steel cutting; Thread cutting machines
- Metal finishing**
Carbonia finish. II Am Gas Light J 103:31 Ag 9 '15
See also Grinding and polishing; Metal coloring
- Metal lath**
Length of life of walls of mortar on metal lath. W. E. Belcher. Eng Rec 71:754 Je 12 '15
- Metal plate floors.** See Floors, Metal plate
- Metal prices.** See Metal trade
- Metal protection**
Aluminum alloys as surface protection for metals subject to high temperatures. Eng N 72:1128 D 3 '14
Calorizing: a protective treatment for metal. H. B. C. Allison and L. A. Hawkins. II Gen Elec R 17:947-51 O '14; Same. Sci Am S 78:241-2 N 28 '14; Same cond. Am Gas Light J 101:309-10 N 16 '14; Same cond. Eng M 48:265-7 N '14; Same cond. Met & Chem Eng 12:730 N '14; Same cond. Iron Age 94:1386-7 D 17 '14; Same cond. Metal Work 82:843-4 D 25 '14
Calorizing metals. W. E. Ruder. Met & Chem Eng 13:325 My '15
Coating of standpipes at Reading, Mass., and Baltimore, Md. F. C. Perkins. II Eng & Contr 44:32 Jl 14 '15
Corrosion of iron. L. C. Wilson. Eng M 48:849-58; 49:58-66, 202-10 Mr-My '15
Corrosion of steel wharves at Kowloon: abstract. S. H. Ellis. diags Am Soc M E J 37:123-4 F '15
Gunite concrete encasement. diags Ry R 56:129-30 Ja 23 '15
New method of coating iron or steel with lead. Iron Age 96:241 Jl 29 '15
Paint protection of the Panama canal lock-gates. H. Goldmark. Eng N 72:1227 D 17 '14
Paint vehicles as protective agents against corrosion; with discussion. M. Toch. II J Ind & Eng Chem 7:510-14 Je '15
Paints for steel structures. Iron Tr R 56:1062-3 My 27 '15
Prepared paints for metal surfaces. H. A. Gardner. Ry Age (Mech ed) 89:513-14 O '15; Same. Eng & Contr 44:346-7 N 3 '15
Preservative coatings for steel. Iron Age 96:23 Jl 1 '15
Preventing corrosion of steel substructure of the Cortlandt street ferry terminal of the Pennsylvania in New York city with gunite. II Ry Age 58:852 Ap 16 '15
Protection of iron and steel by paint films. N. A. Dubois. II Sci Am S 77:85-6 F 7 '14; Same abr. Sci Am S 79:160 Mr 6 '15
Protection of iron and steel. J. W. Gibbons. II Ry Age (Mech ed) 89:580-1 N '15
Protection of metal structures; with discussion. F. H. Fay. II diags Eng Soc W Pa 31:115-93 Mr '15; Excerpt Ry R 57:154 Jl 31 '15
Protection of metals against electrolysis, weathering, chemical fumes, etc. M. Toch. II Sibley J 30:54-5 N '15
Protective coatings for iron and steel. El. P. Later. Foundry 42:497-8; 43:36-4 D '14-Ja '15
Protective coatings for line structure and equipment. R. D. Coombs. Elec W 65:730 Mr 20 '15
Protective coatings for metal. H. B. C. Allison. Gen Elec R 18:878-80 S '15; Same. Eng & Contr 44:263-4 O 6 '15
See also Corrosion and anti-corrosives; Galvanizing; Metal coating
- Bibliography**
Bibliography of metal corrosion and protection. Eng Soc W Pa 31:193-222 Mr '15
- Metal spray.** See Metal coating
- Metal trade**
Australian metal contracts. L. H. Quin. Iron Age 96:1050-1 N 4 '15
Buying and selling of ores and metallurgical products. C. H. Fulton. U S Bur Mines Tech Pa 83:1-42 '15; Excerpt. Met & Chem Eng 18:640-1 S '15; Excerpt. Sci Am S 80:180 S 18 '15
California metal output, 1914. Eng & Min J 100:529 S 25 '15
Course of metal prices since 1879—annual averages: chart. Eng & Min J 99:50 Ja 9 '15
Doing without Europe. Sci Am 112:128, 157+ F 6-13 '15
German metal prices. Engineer 118:537 D 4 '14
Germany's foreign interests in metals. Eng & Min J 99:339-40 F 13 '15
Metal market features of 1914. C. Lundberg. Iron Age 95:11-12 Ja 7 '15
Metal prices in 1913 and 1914, monthly averages: chart. Eng & Min J 99:49 Ja 9 '15
Metal statistics from the United States geological survey. Metal Ind n s 13:334 Ag '15
Metal, tin-plate and sheet prices for seventeen years. Iron Age 95:24-24a Ja 7 '15
Metals in 1914 from the New York Evening post's annual financial review. J Ind & Eng Chem 7:157-8 F '15

Metal trade—Continued

- National metal trades association meeting. Iron Age 95:890-3 Ap 22 '15
 Nevada metal production, 1914. Eng & Min J 100:530 S 25 '15
 Nickel, copper and mercury as affected by the war. J Ind & Eng Chem 7:71-2 Ja '15
 Production of minerals and metals in 1914. Eng & Min J 99:45-77 Ja 9 '15
 Retrospective review of 1914—outlook for 1915. Metal Ind n s 13:23-4 Ja '15
 Steady progress in co-operation as indicated by reports at the annual convention of the National metal trades association. Iron Tr R 56:825-30 Ap 22 '15
 War and our chemical industries. C. H. White. J Ind & Eng Chem 7:62-3 Ja '15
 War and our metals. L. O. Kellogg. Eng M 49:18-27 Ap '15
See also Copper industry and trade; Iron industry and trade; Lead industry and trade; Scrap metal; Steel industry and trade; Zinc industry and trade
- Metal trades association, National.** *See* National metal trades association

Metal waste

- Flotation of Joplin-Galena slimes. G. Belchic and G. L. Allen. Met & Chem Eng 13:847 N 15 '15
 Melting aluminum chips. H. W. Gillett. Metal Ind n s 13:417-18 O '15; Same. Foundry 48:462-3 N '15; Same. Iron Tr R 57:942-3 N 11 '15
 Reclaiming brass sweepings. A. W. Lemme. Iron Age 95:946 Ap 29 '15; Same. Foundry 49:191-2 My '15; Same. Metal Ind n s 13:187-8 My '15
 Reclaiming metals from clinder. Standard equipment company crusher. II diag Foundry 43:327-8 Ag '15
 Reclamation of magnalium from turnings. J. Coulson. Metal Ind n s 13:455-7 N '15; Abstract. Am Soc M E J 37:655-6 N '15
 Refining of zinc waste. L. J. Krom. II diag Metal Ind n s 13:281-3 J1 '15
 Treatment of waste material containing silver. R. J. Marsh. Metal Ind n s 13:314-17 Ag '15
See also Scrap metal; Tailings

Metal work

- See also* Cutlery; Dies; Ironwork; Machine tools; Metal coloring; Metal working plants; Flating; Punching machinery; Sheet-metal work; Solder and soldering; Welding

Metal work, Artistic

- Influence of style on the art metal work of modern times. A. F. Saunders. II Metal Ind n s 12:18-20, 389-90; 13:18-19, 324-5 Ja, S '14, Ja, Ag '15

Metal workers

- Educating sheet metal workers' apprentices. O. B. Chusa. Metal Work 83:327 Je 4 '15

Metal working machinery

- April exports show \$2,000,000 increase or 150 per cent. Iron Age 95:1346-7 Je 17 '15
 Modern sheet metal machinery plant. II plans Metal Work 83:127-9 Ja 15 '15
 New sheet metal forming machine. II diag Iron Age 96:577 S 9 '15
 Power flanging brake for sheet metal. II Iron Age 96:877 O 14 '15
 Ryerson quintuple punching, shearing, and coping machine. II Ind Eng 15:53 F '15
 War revives machinery exports. Iron Age 95:183 Ja 21 '15
See also Machine tools; Wire-working machinery

Metal working plants

- Present practise in the use of tungsten filament lamps for the lighting of metal working plants; with discussion. A. L. Powell and R. B. Harrington. II Illum Eng Soc 9:814-38 no 8 '14

See also Metallurgical plants**Metallography**

- Alumina in steel. G. F. Comstock. II Met & Chem Eng 13:891-5 D 1 '15

- Are the deformation lines in manganese steel twins or slip bands? H. M. Howe and A. G. Levy. 4 pls Am Inst Min E Bul 99:587-600; 103:1487-8 Mr, J1 '15

- Brass and bronze—offsprings of copper. J. E. Schipper. II map Automobile 33:315-19 Ag 19 '15
 Carburization and heat-treatment. J. G. Ayers, Jr. II Mach 23:17-23 S '15
 Detection of burning in steel. J. E. Stead. II Iron Tr R 57:843-4 O 28 '15
 Determination of grain size in metals. Z. Jaffries. Am Inst Min E Bul 108:2359-69 D '15
 Effect of titanium alloys on steel. G. F. Comstock. II Iron Tr R 57:391-5+ Ag 26 '15
 Formation of the oxidized ores of zinc from the sulphide. Y. T. Wang. II Am Inst Min E Bul 105:2007-12 S '15
 High speed tool steels. F. C. A. H. Lantsberry. II Iron Age 96:238-41 J1 29 '15
 How sulphides may exist in steel ingots. J. O. Arnold and G. R. Bolover. Iron Tr R 57:737-8 O 14 '15; Discussion. G. F. Comstock. Iron Tr R 57:894+ N 4 '15
 How to detect phosphorus in steel. W. T. Stead. II Iron Tr R 57:989-90 N 18 '15
 How to select etching reagents. O. F. Hudson. II Iron Tr R 57:216-30 J1 29 '15
 Metallographic grinding and polishing machine. II Iron Age 95:1164 My 27 '15
 Metallography of copper. W. Campbell. Met & Chem Eng 13:721 O 15 '15
 Metallography of German silver. F. C. Thompson. Met & Chem Eng 13:785-6 D '14
 Micrographic inspection of steel: what the United States navy has done in fixing causes of failures. II Iron Age 95:292-3 F 4 '15
 Microscopic tests of steel; German investigations at Krupps. B. Strauss. Iron Age 95:793-4 Ap 8 '15
 Modified iron-carbon diagram. E. A. Sperry. Met & Chem Eng 13:469-71 Ag '15
 Preparation of metal specimens for metallographic tests. II Met & Chem Eng 13:400-1 Je '15
 Radiography of metals. W. P. Davey. II Am Inst Min E Bul 104:1515-25 Ag '15; Same. Gen Elec R 18:796-800 Ag '15; Same cond. Iron Age 96:522-4 S 2 '15
 Reagent for macroscopic etching. J. L. Jones. II Iron Tr R 56:1303-4 Je 24 '15; Abstract. Eng M 49:919 S '15
 Recent developments in cast-iron manufacture. J. E. Johnson, Jr. J Fr Inst 179:59-93, 171-200 Ja-F '15; Discussion. 179:200-13 F '15
 Recent progress in metallography. W. Campbell. bibliog Sch Mines Q 36:249-79 Ap '15
 Researches in annealing malleable castings. O. W. Storey. II Foundry 42:474-8 D '14
 Steel for steering knuckles. E. F. Lake. II Iron Tr R 56:611-12+ Mr 25 '15
 Steel—its pathology. J. R. Schipper. II diag Automobile 32:611-15, 660-3+, 706-8+ Ap 8-22 '15
 Structure and hysteresis loss in medium-carbon steel. F. C. Langenberg and R. G. Weber. II Am Inst Min E Bul 98:391-300 F '15; Same. Iron Age 95:506-3 Mr 4 '15; Same cond. Iron Tr R 57:576-7 S 23 '15
 Surface decarburization of steel. J. G. Ayers, Jr. II Iron Tr R 56:1305-6+ Je 24 '15; Same. Iron Age 96:5-7 J1 1 '15
See also Alloys; Iron; Steel

Bibliography

- Recent progress in metallography. W. Campbell. Sch Mines Q 36:252-79 Ap '15

Metallurgical analysis

- Adjustment of the direct electric lighting current to electro-analysis. H. J. Kaufman. plan Met & Chem Eng 13:524-5 S 1 '15
 Analysis of spelter: report. J Ind & Eng Chem 7:647-8 Je '15
 Electro-analysis of the second group metals; abstract. E. F. Schoch and D. J. Brown. Eng & Min J 100:621 S 25 '15; Same. Met & Chem Eng 13:568 S 1 '15
See also Assaying; Iron—Analysis; Steel—Analysis

Metallurgical apparatus

- Arizona copper co.'s Dorr thickener. D. Cole. II diag Eng & Min J 100:131-4 J1 24 '15
 Callow pneumatic process of flotation. II plan Met & Chem Eng 13:571-3 S 1 '15
 Device to introduce deoxidants into molten metal. diag Iron Age 95:844 Ap 15 '15

Metallurgical apparatus—Continued

Precipitating apparatus for use in cyaniding. plan Eng & Min J 99:1079 Je 19 '15
 Simmonds' retort-discharging machine. 11 Eng & Min J 99:449-50 Mr 6 '15
 Siphons on solution samplers. diags Eng & Min J 99:863 My 15 '15
 Use of hydrometallurgical apparatus in chemical engineering. J: V. N. Dorr. 11 diags J Ind & Eng Chem 7:119-30 F '15; Same. Met & Chem Eng 13:55-9, 91-8 Ja-F '15

See also Concentrating tables; Dorr agitators; Trent agitators

Metallurgical patents

Laist roasting patents. diags Eng & Min J 99:282-4 F 6 '15

See also Alloys—Patents

Metallurgical plants

Anaconda leaching and acid plants. El. P. Mathewson. 11 plans Eng & Min J 99:723-7 Ap 24 '15
 Design of modern copper plants. C: H. Repath. Met & Chem Eng 13:660-1 O 1 '15
 Gold milling in California—a comparison. L. A. Palmer. 11 diag Met & Chem Eng 13:617-24 S 15 '15
 How titanium-aluminum bronze is produced. C. Vickers. 11 Foundry 43:273-8 Jl '15
 Labor and power used in cyanide mills. H. A. Megraw. Eng & Min J 99:313-14 F 13 '15
 Mine and metallurgical construction in 1914. Eng & Min J 99:78-80 Ja 9 '15
 New mill of the Daly West mining co., Park City, Utah. L. C. Howard. 11 plan flow sheet Met & Chem Eng 13:597-602 S 15 '15
 Zinc manufacture in the Pittsburgh district; plant of the American zinc & chemical company at Langeloth, Pa. 11 map Iron Age 95:1064-7 My 18 '15

See also Cyanide plants; Iron works; Smelting works; Steel works

Accidents

Accidents in metallurgical plants in 1913 and 1914. Eng & Min J 100:816 N 13 '15

Cost

Building the Tough-Oakes mill. J: A. Baker. 11 diags Eng & Min J 100:869-74, 915-18 N 27-D 4 '15
 Cost of mill construction. H. T. Curran. Eng & Min J 100:345-7 Ag 28 '15; Same. Eng & Contr 44:266-8 O 6 '15
 Tonopah plant of the Belmont milling co.: construction costs. A. H. Jones. Am Inst Min E Bul 104:1781-2 Ag '15; Same. Eng & Min J 100:481 S 18 '15; Abstract. Met & Chem Eng 13:811-12 N 1 '15

Metallurgists

Good advice to consulting metallurgists and others. W. B. Blythe. Met & Chem Eng 13:442-3 Jl '15

Metallurgy

American institute of mining engineers 110th meeting. Met & Chem Eng 13:177-85 Mr '15
 Formation and decomposition of sulphates during roasting. B. Dudley, jr. Met & Chem Eng 13:221-6, 303-8 Ap-May '15
 Metallurgical temperature chart. W: J. Kiln. Foundry 43:142a Ap '15
 Metallurgical treatment of the low-grade and complex ores of Utah. D. A. Lyon, R. H. Bradford, S. S. Arentz, O. C. Ralston, and C. L. Larson. U S Bur Mines Tech Pa 90:1-39 '15
 Metallurgical work at the National physical laboratory 1914-1915. Met & Chem Eng 13:583-5 S 15 '15
 Metallurgy at international engineering congress. Met & Chem Eng 13:655-62, 721-9 O 1-15 '15
 Metallurgy in the Coeur d'Alenes. H. A. Megraw. 11 Eng & Min J 100:827-30 N 20 '15
 Progress in metallurgy. J. Douglas. Am Inst Min E Bul 100:763-6 Ap '15
 Separation of white metal and gunmetal borings. R. H. Walton and G. T. Bailey. diag Met & Chem Eng 13:204 Ap '15

See also Alloys; Assaying; Blast furnaces; Chemical engineering; Chemistry, Technical; Cyanide process; Electrometallurgy; Electrostatic separation of ores; Filters and filtra-

tion (metallurgy); Flue dust; Flux; Furnaces, Metallurgical; Hydrometallurgy; Magnetic separation of ores; Metallurgical analysis; Metallurgical apparatus; Metallurgical plants; Metallurgists; Metals; Ore treatment; Smelting; Stamp mills; also names of metals, e. g. Aluminum metallurgy, Copper metallurgy, Iron metallurgy, Lead metallurgy, Silver metallurgy, Steel metallurgy, Zinc metallurgy

Exhibitions

Co-operative metallurgical exhibit at the Panama-Pacific international exposition. A. E. Wells and G. H. Clevenger. 11 Met & Chem Eng 13:743-5 O 15 '15

Standards

Standardization of metallurgical units. Met & Chem Eng 13:828-9 N 15 '15

Metals

American institute of metals annual meeting, Atlantic City. Foundry 43:394-7 O '15
 American institute of metals meeting at Atlantic City, Sept. 28. Iron Age 96:819-22 O 7 '15
 Behaviour of metals under stress. F. C. A. H. Lantaberry. Engineer 113:68 Ja 15 '15
 Conductivity of metals. V. J. Thomson. Sci Am S 80:114-15 Ag 21 '15
 Effect of acetylene on metals. Sci Am 113:408 N 6 '15
 Electronic theories of the properties of metals. C. H. Lees. Sci Am S 80:320 N 13 '15
 Hardening of metals. Am Soc M E J 37:489-90 Ag '15
 Institute of metals: annual general meeting. Engineer 113:309-10 Mr 26 '15
 Institute of metals annual meeting, London, March 18-19. Foundry 43:193-4 My '15
 Many carbon-free metals and alloys now available. H. D. Browne. Eng N 74:636-7 S 30 '15
 Metastability of metals. A. Vosmaer. Met & Chem Eng 13:535-6 S 1 '15
 Method of reducing some metals in crystallized form on glass slips as permanent microscope mounts. J. H. Bowman. 11 Am Chem Soc J 37:1468-71 Ja '15
 Munition metals. H. C. H. Carpenter. Sci Am S 80:262-3 O 23 '15; Abstract. Eng. M 50:112-13 O '15
 Passivity of metals. H. G. Byers and S. C. Langdon. diags Am Chem Soc J 36:2004-11 O '14
 Properties of metals at higher temperatures; abstract. P. Ludwik. Am Soc M E J 37:604-5 O '15
 Rapid analysis of bearing metals and high-copper content alloys. C. G. Luttis. Met & Chem Eng 13:346-7 Je '15
 Weight per cubic foot and per cubic inch. W. L. Tryon. Foundry 43:222a Je '15

See also Alloys; Amalgams; Annealing; Assaying; Babbitt metal; Chemistry, Inorganic; Corrosion and anti-corrosives; Foundry practice; Gun metal; Hardening; Hardness; Metal work; Metallography; Metallurgy; Mines and mineral resources; Ore deposits; Slag; Smelting; Solder and soldering; Welding; Wire; also names of metals and alloys, e. g. Aluminum, Brass, Bronze, Cobalt, Copper, Gold, Iron, Lead, Manganese, Mercury, Nickel, Steel, Tin, Zinc

Diseases

Fatigue and disease of metals. P. Kreuzpointer. Iron Age 95:950-1 Ap 29 '15
 Liberty bell and disease of metals. 11 Iron Age 95:391-3 F 13 '15; Same. Sci Am S 79:236-7 Ap 10 '15

Testing

Brinnell hardness testing of non-ferrous alloys. V. Skillman. Metal Ind n s 12:423-4 O '14; Same. Foundry 43:111-12 Mr '15
 Comparison of hardness testing apparatus. Mach 21:364 Ja '15
 Endurance of metals under repeated stresses; some new facts, and a new method of testing. diags Locomotive 30:130-42 Ja '15
 Fatigue of copper alloys. H. Jonson. Metal Ind n s 13:253-4 Jl '15; Same. Eng Rec 72:22-3 Jl 8 '15; Same, with discussion. Foundry 43:311-12 Ag '15

Metals—Testing—Continued

- Finding blowholes with the X-rays. C. H. Tonamy. *Il diags Foundry* 48:456-6 N '15;
Same cond. *Iron Age* 96:1064-5 N 4 '15
Magnetic studies of mechanical deformation in certain ferromagnetic metals and alloys. H. Hanemann and P. D. Merica. *Il Am Inst Min E Bul* 108:2371-85 D '15
Mechanical properties of metals. F. C. A. H. Lantsberry. *Metal Work* 82:827 D '15
Test pieces for tensile tests. H. Friedmann. *diags Metal Ind n s* 13:247 Je '15

Metals, Fatigue In. See **Fatigue in metals**

Metamorphism (geology)

- Observations on contact metamorphic ore deposits. B. Prescott. *diags Econ Geol* 10:55-69 Ja '15

Metastability. See **Allotropy**

Meteor mountain, Arizona

- Mine in a meteor-made crater. A. Chapman. *Il Sci Am* 112:70 Ja 16 '15

Meteorites

- Mine in a meteor-made crater. A. Chapman. *Il Sci Am* 112:70 Ja 16 '15

Meters

- Direct-reading volumetric and velocity meter for measuring fluid flow. *Il Eng N* 72:1213 D 17 '14
Levin flow meter and metering flow bend. *diags Power* 42:372-3 S 14 '15
Rate-flow meter. H. C. Hayes. *Am Soc M E J* 37:159-64 Mr '15; Discussion. 37:164, 225-6 Mr-Apr '15
Report of the committee on measurement of gas in large volumes. *diag Am Gas Inst Pro* 8:pt 1, 677-704; Discussion. 705-20 '14
Republic flow meter. *diag Power* 42:612 N 2 '15; *Eng & Min J* 100:888 N 27 '15
See also **Coal meters**; **Compressed air meters**; **Electric meters**; **Extensometers**; **Gas meters**; **Liquid meters**; **Pitometer**; **Steam meters**; **Viscometers**; **Water meters**

Reading

- Camera for reading meters. *Il Am Gas Light J* 103:141 Ag 30 '15; *Mach* 22:76-6 S '15

Meters, Electric. See **Electric meters**

Meters, Liquid. See **Liquid meters**

Meters, Steam. See **Steam meters**

Methane

- Influence of temperature and pressure on the explosibility of methane-air mixtures. G. A. Burrell and L. W. Robertson. *diag J Ind & Eng Chem* 7:417-19 My '15
Physical laws of methane gas. P. F. Walker. *Am Soc M E J* 37:176-9 Mr '15

Metric system

- Advantages of metric system. C. Vivier. *Automobile* 33:968-9 N 25 '15
If decimals of degree why not decimals of full circle? R. C. Hardman. *Eng Rec* 72:490 O 16 '15

Metropolis, Illinois**Bridges**

- Metropolis bridge over the Ohio river. *diags Ry Age* 59:160 Jl 23 '15

Mexico

- Concrete buildings in Mexico. *Bldg Age* 37:29-30 F '15
Conditions in Mexico. *Met & Chem Eng* 13:209-10 Ap '15
Situation in Mexico. *Eng & Min J* 100:445-6 S 11 '15
See also **Architecture—Mexico**; **Geology—Mexico**; **Latin America**; **Mines and mineral resources—Mexico**; **Petroleum—Mexico**; **Railroads—Mexico**

Economic conditions

- Business in Mexico. *Eng & Min J* 99:900 My 22 '15

- New mining taxes in Mexico. *Eng & Min J* 100:691-2 O 23 '15

Industries and resources

- Occurrences of petroleum in eastern Mexico as contrasted with those in Texas and Louisiana. E. T. Dumble. *Am Inst Min E Bul*

- 104:1623-38 Ag '15; Discussion. 108:2434-5 D '15

See also **Mines and mineral resources—Mexico**; **Petroleum—Mexico**

Law

- More Mexican mining law. *Eng & Min J* 100:688 O 23 '15
New mining edict in Mexico. *Eng & Min J* 99:668-9 Ap 10 '15
New mining taxes in Mexico. *Eng & Min J* 100:811-12 N 13 '15

Miami copper company

- Miami copper company in 1914. J. P. Channing. *Eng & Min J* 99:55-6 Ja 9 '15

Mica

- Sheet mica for stove openings. *Metal Work* 84:161 Jl 30 '15
Temperature limits for mica insulation; discussion. *Elec W* 66:1130 N 20 '15
Temperature of mica insulation; discussion. *Elec R & W Elec'n* 67:942 N 20 '15
X-ray examination of built-up mica. C. N. Moore. *Il diag Gen Elec R* 18:195-7 Mr '15; Same. *Sci Am S* 80:253 O 16 '15

Michigan

See also **Roads—Michigan**

Michigan Central railroad

- Economic value of the Detroit river tunnel. *Sci Am* 113:422 N 13 '15
Important terminal improvement; Detroit river tunnel. *Il Sci Am S* 80:308 N 13 '15
Michigan Central and the Big Four. map *Ry Age* 58:731-3 Ap 2 '15
69th annual report. *Ry Age* 58:771-2 Ap 2 '15
Michigan good roads association
7th annual convention, Grand Rapids, March 9-12. *Good Roads n s* 9:149-50 Ap 3 '15

Michigan railway

- New heavy electric railroad opened in Michigan. *diags Eng N* 74:212-13 Jl 29 '15

- Michigan state association of master plumbers
23d annual convention, Detroit, April 6-7. *Dom Eng* 71:40-2 Ap 10 '15

Michigan state association of sheet metal contractors

- Annual convention, Grand Rapids, Mich., March 10-11. *Metal Work* 83:445-6+ Mr 19 '15

Michigan university

- Automobile engineering curricula. W. T. Fishleigh. *Horseless Age* 35:111-14 Ja 20 '15

Micrometers

- Brown & Sharpe machinists' small tools. *Il Mach* 21:759-60 My '15
History of the micrometer caliper again. L. D. Burlingame. *Mach* 22:58-9 S '15
How we came to have the micrometer caliper. L. D. Burlingame. *Il diags Mach* 21:777-83 Je '15

- How we came to have the micrometer caliper. W. D. Forbes. *Mach* 22:11 S '15

- How we came to have the Slocomb shop micrometer. J. T. Slocomb. *diag Mach* 21:999-1000 Ag '15

- Micrometer caliper as a machine shop gage. J. T. Slocomb. *Mach* 21:309-10 D '14

- Reed & Prince micrometers. *Il Iron Age* 96:750 S 30 '15

Microphones

- Aerial range-finding with electrical ears. *Il Sci Am* 113:377 O 30 '15

- Submarines betrayed by sound waves. *Il Sci Am* 113:333+ O 16 '15

Microphotography. See **Photomicrography**

Micropyrometer

- Emissivity of metals and oxides; measurements with the micropyrometer. G. K. Burgess and R. G. Waltenberg. *U S Bur Stand Bul* 11:591-605 My 27 '15; Excerpt. *Sci Am S* 80:117 Ag 21 '15

Microscopes and microscopy

- Ultramicroscope and its application to modern biology. *Sci Am S* 80:311 O 2 '15

See also **Metallography**; **Photomicrography**

Middle age

- Why do men over forty break down? C. F. Bolduan. *Sci Am* 113:63 Jl 17 '15

- Midvale steel & ordnance co.
Worth brothers and Remington arms; additional absorptions by the Midvale steel & ordnance co. Iron Age 96:908-9 O 14 '15
- Migraine. See Headache
- Mildew
Study of some curious painting phenomena. H: A. Gardner. II J Fr Inst 179:681-6 Je '15
- Militarism
What is militarism? Sci Am 112:78 Ja 23 '15
See also Peace; United States—Defenses
- Military aeronautics. See Aeronautics, Military
- Military art and science
Art of deception in war. II Sci Am 112:124-4 F 6 '15
As it was in the beginning. Sci Am 113:136 Ag 14 '15
Chlorine gas on the battlefield. Sci Am 112:452 My 15 '15
Dispersing asphyxiating gases. II Sci Am 113:98 JI 31 '15
Improvised means of crossing rivers. II Sci Am 112:228 Mr 6 '15
Invisible man behind the gun. Sci Am 112:46 Ja 9 '15
Measurement of distances in war. A. Keller. II diags Sci Am S 79:324-5 My 22 '15
Review of the year 1914: army and navy. Sci Am 112:6 Ja 2 '15
Trench warfare; ten hours of trench digging for ten minutes of rifle fire. W. D. A. Anderson. II Sci Am 113:6-8 JI 3 '15
See also Aeronautics, Military; Artillery; Automobiles in war; Coast defense; Explosives, Military; Fortification; Grenades; Guns; Intrenchments; Mines, Military; Projectiles; Range finding; Shells; Shooting, Military; Shrapnel shells; Sieges; Target practice; Torpedoes; Transportation, Military; War games; also headings beginning Military
- Military automobiles. See Automobiles, Military
- Military bridges
Building bridges under fire. M. Wells. II Sci Am 111:456-7 D 5 '14
Pontoon bridges and rafts. II Sci Am S 80:116 Ag 21 '15
- Military cars. See Cars, Military
- Military communication. See Military telegraph; Military telephone
- Military education
Business men's training camp at Plattsburg. II Sci Am 113:182-3 Ag 28 '15
Military preparedness an insurance for peace. L. Wood. Eng Rec 71:768-9 Je 19 '15
More military and naval academies. R. S. Spear. Sci Am 113:9 JI 3 '15
West Point for non-commissioned officers. F. C. Butler. Sci Am 112:403 My 1 '15
- Military engineering
Electricity in present-day warfare. II Sci Am 113:494-4 D 4 '15
Engineer function in modern warfare. Eng & Min J 100:467-8 S 13 '15
Engineer in the field. J. Graham. Sci Am S 79:98 F 13 '15
Mobilizing the engineer companies of the militia. D. A. Tomlinson. II Eng Rec 72:314-15 S 11 '15
Pioneers of the army. T. Wolff. Sci Am S 80:226-7 O 9 '15
Protecting a retreating army; effective methods of destroying its lines of communications. II Sci Am 112:406 My 1 '15
Specialized experience of engineers and contractors vital to country's defense. G. Ferrine. II Eng Rec 72:594-6 N 13 '15
War geology. W. Salomon. Sci Am S 80:267 O 23 '15
See also Fortification; Intrenchments; Military bridges; Military hygiene; Military lighting; Military reconnaissance; Military telephone; Mines, Military; Transportation, Military
- Military explosives. See Explosives, Military
- Military geography
Geographic aspects of the war. D. W. Johnson. diags Sci Am S 80:194-5, 222-4 S 25-O 2 '15
Ups and downs of war. Sci Am 111:502 D 19 '14
- Military hygiene
Pure water for the army; various forms of field-service filters. II Sci Am S 80:89 Ag 7 '15
Purifying drinking water on the field. Sci Am S 80:238 O 30 '15
Sterilization of water-supplies for troops on active service. G. S. Woodhead. Sci Am S 79:292-3 My 8 '15
Trench frost-bite. L. Smith. Sci Am S 80:357-8 D 4 '15
See also Surgery, Military; War—Relief of sick and wounded
- Military lighting
Watching the enemy from the fighting line. II Sci Am S 80:83-9 Ag 7 '15
- Military photography. See Photography, Military
- Military postal service. See Postal service, Military
- Military reconnaissance
Aerial scouting. H. Bannerman-Phillips. Eng M 50:101-3 O '15
Mechanical aids for air scouts. II Sci Am 112:175 F 20 '15
Military air scouting by motion pictures. E. A. Dench. Sci Am 112:156 F 13 '15
- Military shooting. See Shooting, Military
- Military surgery. See Surgery, Military
- Military telegraph
Telegraph and telephone in the German army. II Sci Am S 80:177, 181 S 13 '15
- Military telephone
Army field telephone and buzzer devised by signal corps. II Elec W 66:849-50 O 16 '15
Field telephones for use in war; abstract. C: R. Darling. diags Elec W 65:874-5 O 16 '15
French field telephones. II Sci Am S 80:293 N 6 '15
German military telephone system. H. Marchand. II Sci Am 111:511 D 19 '14
Telegraph and telephone in the German army. II Sci Am S 80:177, 181 S 13 '15
- Military tools
Military tool with wide variety of uses. II Sci Am 113:471 N 27 '15
- Military transportation. See Transportation, Military
- Militia. See United States—Militia
- Milk
Co-operation between railroads and shippers on milk supply. Ry R 56:158-9 Ja 30 '15
Electric sterilization of milk. Elec R & W Elec'n 67:994 IV 27 '15
Electrified milk-distributing depot using central station service. II Elec W 66:650 S 18 '15
Motors simplify operations in milk depot. J. L. Wiltse. II Elec W 66:363-5 Ag 14 '15
Purification of milk by electricity. II Elec W 64:1153-4 D 12 '14
Analysis
Device for the successive determination of the solids and fat in milk and other fluids. A. Seidenberg. J Ind & Eng Chem 7:769-73 S '15
Experimental data comparing the delicacy of different tests for hydrogen peroxide in milk. I. T. Darlington. J Ind & Eng Chem 7:876 Ag '15
Manufacture of condensed milk, casein, etc. R. T. Mohan. Sci Am S 80:26 JI 10 '15
Bacteriology
Studies in bacterial metabolism. A. I. Kendall, A. A. Day and A. W. Walker. Am Chem Soc J 38:1987-66 S '14
- Milk, Condensed
Manufacture of condensed milk, casein, etc. R. T. Mohan. Sci Am S 80:14-15, 26 JI 3-10 '15
- Miller, Spencer, 1859-
Sketch. por Eng M 50:217 N '15
- Milling costs. See Ore treatment—Cost
- Milling cutters
Interlocking milling cutters. diags Mach 21:311-12 JI '15
- Milling machinery. See Crushing machinery

Milling machines

- Compound indexing on the milling machine. J. A. Hinckley. Mach 21:1005 Ag '15
- Cutting short lead spirals. II Iron Age 94:1293 D 3 '14
- Efficiency in milling and boring: Dodge miller turns out 18 cylinder blocks and heads in 1 hour. II Automobile 32:377 F 25 '15
- Fast continuous milling. II Mach 21:398 Ag '15
- Fixtures for continuous milling. A. B. Bachmann. II diag Mach 21:351-4 Ja '15
- History of the milling machine. L. D. Burlingame. II Iron Tr R 56:923-8 My 6 '15
- Kempsmith spindle nose construction. II diag Mach 21:1021 Ag '15
- Machine for milling spiral grooves. G. Werner, Jr. diag Mach 22:163-4 O '15
- Milling attachments. L. J. Rodgers. II Mach 21:272 D '14
- Oesterlein milling machines. II Mach 21:595 Mr '15; Iron Age 95:444 F 25 '15
- Plano-type milling machine. II Engineer 120: 139 Ag 6 '15
- Rapid finishing of automobile castings. II Iron Age 94:1282-3 D 3 '14
- Spiral milling attachment. II diag Iron Age 95: 1389 Je 24 '15
- Square-end milling fixture. O. A. Webster. II diag Mach 21:1009 Ag '15
- Three adaptable milling fixtures. C. F. Meyer. II diag Mach 21:962-5 Ag '15
- Turning a ball on the milling machine. G. Silder. diag Mach 21:407 Ja '15
- Twin machines for Packard rear axles. II Automobile 32:684 Ap 15 '15
- Uninterrupted feed milling machine. II Iron Age 96:1284 N 25 '15
- Vertical milling machine for shrapnel. II Iron Age 95:1281 Je 10 '15
- See also Die-sinking machines; Gear cutting; Machine tools

Mills and millwork

- Estimating the cost of mill buildings. C. F. Dingman. Eng & Contr 44:185 S 8 '15
- Wind stresses in steel mill-buildings. R. Fleming. diag Eng N 73:210-14 F 4 '15
- See also Cotton mills; Factories; Flour mills; Knitting mills; Machinery; Manufactures; Paper mills; Rolling mills; Sawmills; Scientific management; Textile mills

Milwaukee, Wisconsin**Bridges**

- Actual operations in connection with the shifting of double-track swing spans on the Chicago & Northwestern Ry. II Eng & Contr 43:359-60 Ap 21 '15
- Design and construction work preliminary to the actual shifting of a double-track swing bridge on the Chicago & Northwestern Ry. plans Eng & Contr 43:356-9 Ap 21 '15

Railroads

- Operating the Milwaukee (Wis.) terminals of the St. Paul. W. B. Hinrichs. Ry Age 57: 1050-1 D 4 '14

Rapid transit

- Milwaukee fare case decided. Elec Ry J 46: 52-3 JI 10 '15
- Zone system of fares in practice; with discussion. R. B. Stearns. Elec Ry J 45:336-8 My 1 '15

Sanitary affairs

- Milwaukee bureau of street sanitation. Munic J 37:888-90 D 17 '14

Sewerage

- Activated-sludge experiments. T. C. Hatton. diag Eng N 74:134-7 JI 15 '15
- Milwaukee sewerage problem and the sewage treatment testing station. T. C. Hatton. Eng & Contr 42:387-9 O 14 '14
- World's first full-scale plant for the treatment of sewage by the activated sludge process. T. C. Hatton. diag plan Eng & Contr 44:322-7 O 27 '15; Same cond. Eng Rec 72: 481-4 O 16 '15; Abstract. Munic J 39:776-7 N 18 '15

Water supply

- Construction plant and methods employed on new water works intake tunnel. II diag plan Eng & Contr 43:352-5, 371-2 Ap 21-28 '15

- Curtailment of water waste and selection of meters at Milwaukee water works. Eng & Contr 42:176 Ag 19 '14
- Meter maintenance systematized by water-works department in Milwaukee. II Eng Rec 71:587-8 My 8 '15
- Special features in the new intake tunnel at Milwaukee. L. G. Warren. diag Eng N 73: 686-7 Ap 8 '15

Mine accidents

- Accident prevention by the New Jersey zinc co. B. F. Tillson. Eng & Min J 98:1084-9 D 12 '14
- Accident rate at various hours of the day; table. Eng & Min J 100:239 Ag 7 '15
- Accidents from falls of rock or ore. E. Higgins. II U S Bur Mines Circ 17:1-13 '14; Same. Iron Tr R 56:375-7+ F 18 '15
- Causes of electrical accidents in English collieries. diag Elec R & W Elec'n 67:903 N 13 '15
- Compensation laws and accidents. E. N. Zern. Colliery 35:432-5 Mr '15
- Metal-mine accidents in the United States, during the calendar year 1913. A. H. Fay. U S Bur Mines Tech Pa 94:1-70 '14
- Mine beyond the sunshine. Sci Am 113:450 N 20 '15
- Statistical data on fatal and nonfatal accidents. C. B. Dutton. tables U S Bur Mines Bul 75:174-245 '15
- Unusual and historic accidents. W. R. Ingalls and L. O. Kellogg. U S Bur Mines Bul 75: 257-76 '15

See also Coal mines and mining—Accidents and explosions; Firedamp; Mine explosions; Mine fires; Mine rescue work; Mining engineering—Safety devices and measures; Safety lamps

Mine accounting

- Recording and comparing mining data. F. T. Rubidge. Eng & Min J 99:193-4 Ja 23 '15

Mine air

- Humidifying mine air. J. W. Reed. Colliery 35:330-2 Ja '15
- Humidity of mine air. Colliery 35:302 Ja '15
- Humidity of mine air. R. Y. Williams. II map U S Bur Mines Bul 83:1-63 '14
- Hydrograph. H. Briggs. Colliery 35:374-5 F '15
- Rock-dust sampler. O. Ruhl. II Eng & Min J 99:238 Ja 30 '15

See also Mine gases; Mine ventilation

Mine animals. See Live stock; Mules**Mine buildings**

- Aurora's change house. W. S. Black. II diag plan Eng & Min J 100:310-11 Ag 21 '15
- Saw-tooth colliery building. II diag Colliery 35:235 D '14

- Shaft-rockhouse practice in the copper country. L. H. Goodwin. II diag Eng & Min J 99:1061-6, 1107-10; 100:7-12, 53-7 Je 19-JI 10 '15

See also Miners' houses

Mine bulkheads

- Design, construction, and cost of two mine bulkheads at Hibernia mine, New Jersey. S. L. Wise and W. Strache. diag Colliery 35:258-9 D '14; Same. Eng & Contr 42:309 S 30 '14

Mine cages. See Mine hoisting**Mine cars**

- Application of roller bearings to mine-car haulage. P. N. Case. diag Eng & Min J 100:144-6 JI 24 '15
- Automatic end gate for mine cars. A. G. Morlock. diag Eng & Contr 43:185 F 24 '15
- Mine chutes. See Mine timbering

Mine construction

- Arching in collieries. R. G. Clark. diag Colliery 35:292-6 Ja '15
- Concrete in mine work. S. Reynolds. Colliery 35:407-8 Mr '15
- Concrete underground ore pocket at Copper Queen. F. M. Heidelberg. diag Eng & Min J 100:559-61 O 2 '15
- Design of angle-sheave frames. F. L. Burr. Eng & Min J 99:359-64, 403-8 F 20-27 '15

Mine construction—Continued

Reinforced concrete props and beams in mines. S. M. Dixon. Colliery 35:431-2 Mr '15
See also Headframes; Mine bulkheads; Mine dams; Mine shafts; Mine timbering; Mine tipples

Mine dams

Effectual sealing of water dams. F. H. Waterhouse. diags Colliery 36:35-6 Ag '15

Mine drainage

Roosevelt drainage tunnel, Cripple Creek, Colorado. T. H. Sheldon. *il* map Eng & Min J 100:546-9 O 2 '15

See also Mine pumping

Mine equipment

Design and construction of a concrete idler stand. H. H. Hunter. diags Eng & Contr 44:413-14 N 24 '15

Electrical equipment rules. Colliery 35:678-+ J1 '15

Skip transfer at incline-shaft collar. A. C. Vivian. diags Eng & Min J 98:1095 D 19 '14

See also Electricity in mining; Mine cars; Mine haulage; Mine hoisting; Mining machinery

Mine explosions

Air blasts at Quincy mine, Houghton, Mich. Eng & Min J 99:314-15 My 22 '15

Carlisle mine explosion. W. Z. Price. Colliery 35:464 Ap '15

Coroner's report on Mulga disaster. Colliery 35:236 D '14

Explosibility of acetylene. G. A. Burrell and G. G. Oberfell. U S Bur Mines Tech Pa 112: 1-12 '15

What a miner can do to prevent explosions of gas and of coal dust. G. S. Rice. U S Bur Mines Circ 21:1-21 '15

See also Coal dust; Coal mines and mining—Accidents and explosions; Mine accidents; Mine air; Mine fires; Mine gases

Mine fans. *See* Mine ventilation

Mine fires

Anticipating mine fires. J. McCrystle. plan Colliery 36:79-80 S '15

Black Hawk mine fire; use of oxygen helmet apparatus. J. B. Forrester. map Colliery 36: 12-18 Ag '15

Causes of mine fires. A. C. Starr. Colliery 35: 532 My '15

Fire-fighting methods at the Mountain View mine, Butte, Mont. C. L. Berrien. *il* pls Am Inst Min E Bul 102:1215-45 Je '15

Reversing main air-currents. W. Clifford. diags Colliery 35:544-5 My '15

Stripping at the National colliery. *il* Colliery 35:598-9 Je '15

See also Firedamp; Mine explosions; Safety lamps

Mine foremen

Answers to examination questions for mine foreman and fire boss in various states in 1914. Colliery 35:447-50 Mr '15

Answers to examination questions for mine foreman and fire boss in various states in 1915. Colliery 36:163-5 O '15

Mine foreman and first aid. W. McIntyre, jr. Colliery 35:296 Ja '15

Questions selected from those asked at an examination for mine foreman, held in Price, Utah, September 15 and 16, 1914. Colliery 35: 217-20, 276-9, 333-41 N '14-Ja '15

Questions selected from those asked at examinations for mine foreman and fire boss in various states in 1915. Colliery 36:50+, 108-7 Ag-S '15

Mine gases

Gas caps and gas discharges. J. Thompson. Colliery 35:608-9 Je '15

Gas-detecting apparatus. W. G. McMillan. Colliery 35:611 Je '15

Occurrence of explosive gases in coal mines. N. H. Darton. bibliog diags maps U S Bur Mines Bul 72:1-237 '15

Origin, occurrence, and behavior, of the gases usually found in mines. F. Haas. Colliery 35:375-9 F '15; Discussion. 35:436-41, 433-5, 501-2 Mr-Apr '15

See also Firedamp; Mine air; Mine explosions; Mine ventilation

Mine haulage

Electric haulage problem. Colliery 35:560 My '15

Handling stock-pile cars. F. H. Armstrong. *il* Eng & Min J 100:365 Ag 28 '15

Mine mule investigations. G. E. Wentworth. Colliery 35:361-2 D '14

Moving ore in flat stopes. E. M. Weston. *il* diag Eng & Min J 100:665-6 O 23 '15

Proposed incline haul. M. M. Haley. plan Colliery 36:127 O '15

Rate of hand tramming. Eng & Min J 100:226 Ag 7 '15

Regenerating electric ore railroad. Eng M 49: 121-2 Ap '15

Tramming and hoisting at Copper Queen mine. G. F. G. Sherman. *il* diags Am Inst Min E Bul 105:1837-35 S '15

See also Locomotives, Mine; Mine cars; Mine hoisting; Mine tipples; Mine tracks

Cost

Gasoline locomotive haulage; its cost as compared to mule haulage at mines of Prosper coal co., Bradel, Ky. *il* Colliery 35:547-8 My '15

Mine hoisting

Alaskan ore-hoisting rig. W. Swaren. diag Eng & Min J 100:392 S 4 '15

Automatic landing chairs. *il* Eng & Min J 100: 761 N 6 '15

Balancing dummy in inclined shaft. L. H. Goodwin. Eng & Min J 98:1001-2 D 5 '14

Bucket-dumping device. H. A. Linke. diag Eng & Min J 99:944 My 29 '15

Design of angle-sheave frames. F. L. Burr. Eng & Min J 99:353-64, 403-8 F 20-27 '15

Diameter of sheaves for hoisting rope. Eng & Min J 100:883 N 27 '15

Electric winding; abstract. Elec W 56:376 O 16 '15

Facing-off a brake wheel. A. E. Hall. *il* Eng & Min J 100:760 N 6 '15

Features of the electrical equipment for the Granite mountain hoist. G. B. Rosenblatt. *il* diag Assn Eng Soc J 54:199-209 My '15

Fleeting device for hoist with conical drums. F. H. Armstrong. *il* diag Eng & Min J 99: 945 My 29 '15

French electric mine hoist. *il* Colliery 35:468-70+ Ap '15

Granite mountain hoist. G. B. Rosenblatt. Eng & Min J 100:115-16 J1 17 '15

Hoist and compressor power curves. P. E. Barbour. Eng & Min J 99:388-9 Je 5 '15

Large electric hoist. W. Sykes. *il* diags Am Inst E E Pro 34:1819-27 Ag '15

Large electric hoist for Montana mine. Elec R & W Elec'n 67:943-4 N 20 '15

Lateral friction of winding ropes; abstract. H. W. G. Halbaum. Am Soc M E J 37:351-2 Je '15

Men and machinery of the Comstock—pioneer hoisting works. G. W. Dickie. *il* Eng & Min J 98:1180-4 D 26 '14

Prevention of overwinding and overspeeding in shafts. G. G. T. Poole. Colliery 36:20-2 Ag '15

Reversing rope on single-drum hoist. C. M. Rasmussen. Eng & Min J 99:665-6 Ap 10 '15

Silver Hill underground hoisting station. J. Humes. *il* diags Eng & Min J 100:747-51 N 6 '15

Sliding board for hoisting ropes. D. E. Charlton. diags Eng & Min J 100:293 S 4 '15

Spillage and sinking pocket. A. E. Hall. diags Eng & Min J 99:612 Ap 3 '15

Steel headframe at no. 9 shaft, Republic mine, Vulcan, Mich. F. L. Burr. *il* diags Eng & Min J 100:379-82, 430-5 S 4-11 '15

Substitute for rollers in incline. H. H. Hodgkinson. diag Eng & Min J 99:149-50 Ja 16 '15

Tests of large steam hoists. H. E. Spring. Gen Elec R 18:179-89 Mr '15

Tramming and hoisting at Copper Queen mine. G. F. G. Sherman. *il* diags Am Inst Min E Bul 105:1837-35 S '15

Underground crushing and loading arrangements. A. E. Hall. diags Eng & Min J 99:192-3 Ja 23 '15

Wooden or steel cages. Colliery 35:446 Mr '15

See also Mine haulage

Mine inspection

- Digest of state metal-mine inspection laws. C. B. Dutton. U S Bur Mines Bul 75:129-63 '15
 Inspection of mines. J. L. Mullen. Colliery 35: 435 Mr '15
 Inspection systems maintained by mining companies. L. O. Kellogg. U S Bur Mines Bul 75:246-53 '15
 Organization of existing state mine-inspection systems. L. O. Kellogg. U S Bur Mines Bul 75:164-73 '15
 Safety inspection system of the Susquehanna coal co. F. C. Curtis. Colliery 35:607-8 Je '15

Mine inspectors

- State geological and mining officials. Eng & Min J 99:104 Ja 9 '15

Mine labor. See Coal miners; Miners

Mine ladders. See Ladders

Mine lighting

- Illumination of mines. R. P. Burrows. II plan Am Inst Min E Bul 107:2237-45 N '15

Mine locomotives. See Locomotives, Mine

Mine management

- Coal mining in West Virginia. J. E. Coleman. II Sibley J 30:21-7 O '15
 E. E. White coal company mines. G. D. Evans. II Colliery 35:401-7 Mr '15
 Efficiency in coal mining. G. S. Brackett. Colliery 35:538-92 Je '15
 Essentials of organization and management. J. R. Finlay. II Eng & Min J 100:171-6 Ji 31 '15
 Handling drill steel at the Quincy mine. L. H. Goodwin. plan Eng & Min J 99:16 Ja 2 '15
 Investments in Iron river district. C. A. Tupper. II Iron Tr R 56:759-64 Ap 15 '15
 Labor factor in bituminous mines. G. S. Brackett. Colliery 36:99-100 S '15
 Operations in the New River field. W. Z. Price. II Colliery 35:536-7 My '15
 Practical economy at coal mines. L. G. Hauger. Colliery 36:128-31 O '15

See also Mine foremen

Mine models

- Mine model of the Broken Hill lode. II Eng & Min J 99:1076-7 Je 19 '15
 Mine model of vertical glass plates. diags Eng & Min J 99:236-7 Ja 30 '15
 Mine models made of celluloid sheets. M. C. Lake. diag Eng & Min J 99:737 Ap 24 '15
 Mt Hope mine model. J. C. Stockland. II Eng & Min J 99:446 Mr 6 '15

Mine motors. See Mining machinery

Mine power. See Mining engineering—Power

Mine pumping

- Centrifugal mine pumps on the Rand; with cost data. E. G. Izod and A. P. Rouillard. diags Eng & Min J 99:1115-16 Je 26 '15
 Dewatering an anthracite mine. W. Z. Price. II diags Colliery 36:87-90 S '15
 Economical pump arrangement. H. S. Lee. diag Eng & Min J 99:281 F 6 '15
 Mine pumping; comparison of steam and electric pumps. C. Legrand. Am Inst Min E Bul 105:1929-35 S '15

Mine railroads. See Mine ties; Mine tracks; Railroads, Industrial

Mine records. See Mine accounting

Mine rescue work

- Berwind-White first-aid meeting. II Colliery 35:254-5 D '14
 Black Hawk mine fire; use of oxygen helmet apparatus. J. B. Forrester. map Colliery 36: 12-18 Ag '15
 First-aid contest. Superior coal company. II Colliery 35:429-30 Mr '15
 First-aid instructions for miners. M. W. Glasgow. W. A. Raudenbush, and C. O. Roberts. II U S Bur Mines Cir 8:1-64 '15
 Layland rescue work. E. A. Henry. Eng & Min J 99:866-7 Ap 10 '15
 Montana first aid. Colliery 36:85-6 S '15
 Roylton mine explosion. II plan Colliery 35: 268-8 D '14
 Self-contained rescue apparatus. J. S. Hal-dane. Colliery 36:81-3 S '15
 Telephones for use in mine rescue work demonstrated at San Francisco. II Elec R & W Elec'n 66:830 My 1 '15

Mine roofs

- Stresses in the mine roof. R. D. Hall. diags Am Inst Min E Bul 105:2013-21 S '15

Mine sanitation

- Pulmonary disease among miners in the Joplin district, Missouri and its relation to rock dust in the mines. A. J. Lanza and E. Higgins. II maps U S Bur Mines Tech Pa 105:1-47 '15; Abstract. Eng & Min J 99:331-3 F 13 '15

See also Mine ventilation

Mine shafts

- Cover for shaft ladderway. D. E. Charlton. diag Eng & Min J 100:269 Ag 14 '15
 Fireproofing mine shafts. diags Colliery 35:441-2 Mr '15
 Fireproofing mine shafts. Eng & Min J 99: 421 F 27 '15
 Gunite casing on wood shaft lining. S. Royce. II diags Eng & Min J 99:409-11 F 27 '15
 Inclined shaft for timber on the Mesabi. L. D. Davenport. diags Eng & Min J 99:776-7 My 1 '15
 Interlining a timber and steel lined shaft with a cement gun. S. Royer. diag Eng & Contr 44:278 O 6 '15
 Reinforced-concrete shaft sets. L. D. Davenport. II plans Eng & Min J 99:447-8 Mr 6 '15
 Simple folding shaft gate. F. T. Teddy. diag Eng & Min J 100:599-600 O 9 '15
 Steel shaft timbering at Los Ocotes mine. R. H. Cromwell. diags Sch Mines Q 36:143-6 Ja '15; Abstract. Eng & Min J 100:302 N 13 '15
 Use of concrete underground; methods in use in some shafts in the copper country. H. T. Mercer. diags Colliery 35:419-26 Mr '15
 Vertical-shaft steel stairway. plan Eng & Min J 98:1002 D 5 '14
 See also Headframes; Mine timbering; Shaft lining; Shaft sinking

Mine shops

- Colliery repair shops. W. Z. Price. II Colliery 35:269-71 D '14

Mine signals

- Automatic signal system used in stock-piling iron ore. J. F. Murphy. diags Eng & Min J 100:225 Ag 7 '15
 Battery bell signaling in English mines. R. V. Wheeler. Elec R & W Elec'n 66:903-4 My 15 '15; Same. Elec W 65:1304 My 22 '15
 Locked signal system in the Palmer shaft of the New Jersey zinc co.'s mine at Franklin, N. J. E. H. Hodgkinson. diags Eng & Min J 99:777-8 My 1 '15
 Rosehall signal indicator. J. Black. diags Colliery 35:479-80 Ap '15
 Warning bell for topmen. H. A. Linke. diag Eng & Min J 99:685 Ap 15 '15
 Winding-engine signals. W. H. Davis. II diag Colliery 36:83-5 S '15

Mine surveying

- Azimuth estimation from incorrect plumbing. A. E. Flynn. Eng & Min J 99:695 Ap 17 '15
 Compass surveying. R. Bowen. Colliery 35: 417-18 Mr '15
 Engineering notes and methods at Miami. H. P. Bowen. Eng & Min J 100:15-17 Ji 3 '15
 Surveying in anthracite mines. W. Z. Price. diag Colliery 35:461-4, 541-3 Ap-May '15
 Top telescope problem. F. W. Sperr. diags Colliery 35:523-6 My '15
 Triangulating from two plumb wires. A. G. Wolf. Eng & Min J 98:1043-4 D 13 '14
 What the dip needle can and cannot do. C. A. Cheney, Jr. Eng & Min J 100:193-4 Ji 81 '15
 What the dip needle can and cannot do. W. O. Hotchkiss. Eng & Min J 100:383 Ag 28 '15

Mine taxation

- Abstracts of current decisions on mines and mining, October, 1914, to April, 1915. J. W. Thompson. U S Bur Mines Bul 101:121-5 '15
 Harrison bill, recently defeated in the Minnesota legislature. Eng & Min J 100:877-8 N 27 '15
 Mine taxation in Mexico. E. A. H. Tays. Eng & Min J 99:913 My 22 '15
 New mining taxes in Mexico. Eng & Min J 100:811-12 N 13 '15
 See also Mine valuation

- Mine temperature**
Normal underground temperatures. Eng & Min J 100:475 S 18 '15
- Mine ties**
Slick steel mine tie. diag Colliery 35:342-4 Ja '15
Slick steel mine ties. 11 diags Ry R 56:436-7 Mr 27 '15
Steel mine ties. 11 Colliery 35:380-1 F '15
- Mine timber**
Preservation of mine timber. H. A. Appel. Colliery 35:481-3 Ap '15
Rocky mountain mine timbers. N. de W. Betts. diag U S Agric Bul 77:1-34 '14
United States mining statutes annotated; timber cutting for mining purposes. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1334-53 '15
- Mine timbering**
Coal mining problem: hydraulic stowage. Engineer 118:526 D 4 '14
Comparative timbering costs in mine and sub-way. diag Eng & Min J 100:689-90 O 23 '15
Composite mine props. diags Colliery 35:383 F '15
Improved chute hook. diags Eng & Min J 100:227 Ag 7 '15
Light shaft timbering. H. A. Linke. diags Eng & Min J 99:696 Ap 17 '15
Method of reinforcing set timbers. H. H. Hodgkinson. diag Eng & Min J 98:1001 D 5 '14
Rock- and ore-chute door. D. E. Charlton. diag Eng & Min J 100:326-7 Ag 7 '15
Safety in systematic timbering. W. P. Kearns. 11 plan Colliery 35:254 D '14
Shaft timbering and headgear on the Mesabi range. diags Eng & Min J 99:1119 Je 28 '15
Steel shaft timbering at Los Ocotes mine. R. H. Cromwell. diags Sch Mines Q 36:143-6 Ja '15; Abstract. Eng & Min J 100:302 N 13 '15
Substantial ore chute. H. H. Hodgkinson. plan Eng & Min J 99:861-2 My 15 '15
Timbering stopes for safety. H. H. Hodgkinson. diags Eng & Min J 99:818-20; 100:69 My 8, Jl 10 '15
Types of chutes and chute gates. A. E. Hall. diags Eng & Min J 99:788-9 Ap 24 '15
Unique method of sinking shafts in soft ground. L. T. Emory. 11 Eng N 73:397-8 F 25 '15; Same cond. Eng & Min J 99:945-6 My 29 '15
See also Headframes; Mine construction; Mine shafts
- Mine tipples**
Lucerne power plant and tippie of the Rochester & Pittsburgh coal and iron co. C. M. Young. 11 Colliery 36:1-6 Ag '15
- Mine tracks**
Calculating diamond crossover for shaft bottom. diag Eng & Min J 100:762 N 6 '15
Importance of good mine tracks. J. C. Edwards. Colliery 35:471-2 Ap '15
See also Mine ties
- Mine valuation**
Observations on the appraisal of the iron mines of Michigan. C. H. Baxter. Eng & Min J 99:439-40 Mr 6 '15
Principle of coal evaluation. R. W. Coulthard. Colliery 36:22 Ag '15
Valuation of Arizona's producing mines. Eng & Min J 100:469 S 18 '15
Valuation of coal lands. W. E. Fohl. Colliery 36:64-6 S '15
- Mine ventilation**
Influence moisture in the air has on mine ventilation; abstract. A. C. Whitcome. Am Soc M E J 87:563-4 S '15
Pressure ventilating system used in Cripple Creek mines. S. A. Worcester. diags Eng & Min J 99:981-5 Je 5 '15
Reversing main air-currents. W. Clifford. diags Colliery 35:544-5 My '15
Running a fan economically. Colliery 35:398 F '15
Testing of ventilating fans. T. Bryson. Colliery 35:465-7 Ap '15; Abstract. Am Soc M E J 87:124 F '15
Ventilating a dead heading. P. Ruth, jr. plan Eng & Min J 100:226 Ag 7 '15
- Ventilation of the Copper Queen mine. C: A. Mitke. diags Am Inst Min E Bul 105:1941-58 S '15; Discussion. 108:2477-8 D '15**
See also Mine air
- Mine water**
Comparison of the water of Sulphur Springs with deep well and mine waters. C. E. Siebenthal. Econ Geol 9:762-3 D '14
Composition of waters in mines of sulphide ores. E. T. Hodge. Econ Geol 10:123-39 F '15
See also Mine dams; Mine drainage
- Mineral industries**
American smelting and refining co.; abstract of the annual report for 1914. Eng & Min J 99:582-3 Mr 27 '15
British mineral statistics. Engineer 119:249-50 Mr 12 '15
Doing without Europe. Sci Am 112:128, 157+ F 6-13 '15
Foreign mineral trade of Great Britain. Eng & Min J 99:442 Mr 6 '15
Mineral-industry exhibit at the National museum. C. G. Gilbert. 11 Eng & Min J 100:470-2 S 18 '15
See also Metal trade; Metallurgy; Mines and mineral resources; Mining industry and finance; also names of particular industries, e. g. Iron industry and trade
- Mineral lands**
Abstracts of current decisions on mines and mining, December, 1913, to September, 1914. J. W. Thompson. U S Bur Mines Bul 90:1-11, 24-48, 131-53 '15
Abstracts of current decisions on mines and mining, October, 1914, to April, 1915. J. W. Thompson. U S Bur Mines Bul 101:1-136 '15
Acquiring placer-mining claims in British Columbia. J. A. Macdonald. diag Eng & Min J 100:757-9 N 6 '15
Conflicts between placer patents and lode claims. A. L. H. Street. Eng & Min J 99:736 Ap 24 '15
Forest service and the prospector. L. A. Palmer. Colliery 35:511+ Ap '15
Forfeiture of co-owner's interest in claim. A. L. H. Street. Eng & Min J 100:570 O 2 '15
Forfeiture of placer locations. A. L. H. Street. Eng & Min J 100:224 Ag 7 '15
Nature of title to mine claims. A. L. H. Street. Eng & Min J 100:666-7 O 23 '15
Prospecting for minerals in Ontario. J. A. Macdonald. Eng & Min J 99:1067-8 Je 19 '15
Relocation of mining claims. A. L. H. Street. Eng & Min J 100:227 Ag 7 '15
Right of a mining or ore-milling company to condemn land. A. L. H. Street. Eng & Min J 100:757 N 6 '15
Sliding royalties for oil and gas wells. R. H. Johnson. Am Inst Min E Bul 102:1292-4 Je '15; Discussion. 108:2423-5 D '15
Staking out mineral claims in Ontario. J. A. Macdonald. diag Eng & Min J 99:324-5 F 13 '15
United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:1-1772 '15
See also Coal lands; Mines and mineral resources; Ore deposits
- Mineral oils. See Petroleum**
- Mineral resources. See Mines and mineral resources**
- Mineral springs. See Mineral waters**
- Mineral waters**
Spring deposits at Sulphur Springs, Ark. C. E. Siebenthal. Econ Geol 9:758-67 D '14
- Mineralogy**
Origin and occurrence of certain crystallographic intergrowths. J. Segall. 2 pls Econ Geol 10:462-70 Jl '15
Tables for the determination of gems and precious or ornamental stones without injury to the specimen. A. J. Moses. Sch Mines Q 36:199-232 Ap '15
See also Abrasives; Assaying; Crystallography; Earths, Rare; Geology; Metals; Mines and mineral resources; Rocks; Stone; also names of minerals, e. g. Coal
- Minerals. See Mineral lands; Mineralogy; Mines and mineral resources**

Miners

Ancient gold mining in East Africa; extracts from Diodorus the Sicilian. A. B. Coll. Eng & Min J 99:1041-2 Je 12 '15
 Arizona copper miners' strike. II Eng & Min J 100:805-7 O 9 '15
 Change in character of mining communities. Colliery 35:587 Je '15
 Government ownership and the miner. E. L. Bailey. Colliery 35:480-1 Ap '15
 Miners' wages again. Engineer 120:228-9 S 3 '15
 Nystagmus (trembling of the eyes) of the miners. Colliery 35:505 Ap '15
 Phthisis conditions on the Rand. A. C. Key. Eng & Min J 99:28-9 Ja 2 '15
 Pulmonary disease among miners in the Joplin district, Missouri and its relation to rock dust in the mines. A. J. Lanza and E. Higgins. II maps U S Bur Mines Tech Pa 105:1-47 '15; Abstract. Eng & Min J 99:331-3 F 13 '15
 Strike situation in Arizona. II Eng & Min J 100:781-3 O 30 '15
See also Coal miners; Mine rescue work; Mining towns

Miners' houses

Steel and concrete mine houses. diagrs plan Eng & Min J 99:987-8 Je 5 '15

Mines, Bureau of. *See* United States—Mines, Bureau of

Mines, Military

Mining and countermining of fortifications. II Sci Am 111:484-5 D 5 '14

See also Mines, Submarine

Mines, Submarine

Mines in the North sea. II Sci Am 111:489 D 12 '14

Observation mines for harbor protection. II Sci Am 113:480 N 13 '15

Sinker of the Bouvet, Irresistible and Ocean? II Sci Am 112:402 My 1 '15

Submarine mines; their design and their manner of functioning. J. Huber. diagrs Eng M 50:120-1 O '15

Swimming mine. diag Eng M 50:122 O '15

Mines and mineral resources

Data of the world's principal mines. S. F. Shaw. Eng & Min J 99:84-5 Ja 9 '15

World's mineral reserves. E. C. Ekel. Eng M 48:658-66 F '15

See also Coal mines and mining; Copper mines and mining; Geology; Gold mines and mining; Hydraulic mining; Iron mines and mining; Lead mines and mining; Magnesite; Meerschaut; Mercury; Metals; Mine fires; Mine management; Mine surveying; Mine ventilation; Mineral lands; Mineralogy; Miners; Mining engineering; Mining laws; Mining machinery; Molybdenite; Monazite; Ore deposits; Petroleum; Phosphates; Prospecting; Quarries and quarrying; Salt; Shaft sinking; Silver mines and mining; Sulphur; Tin mines and mining; Zinc mines and mining

Exhibitions

Panama-Pacific exposition. II plan Colliery 35: 657-68 Jl '15

Alaska

Alaskan mining in 1914. Eng & Min J 99:116-19 Ja 9 '15

Kenai district, Alaska. Eng & Min J 100:876 O 23 '15

Stopping methods at Fairbanks. H. I. Ellis. II Eng & Min J 100:508-8 S 25 '15

See also Coal mines and mining—Alaska; Gold mines and mining—Alaska; Petroleum—Alaska

Arizona

Arizona, in 1914. map Eng & Min J 99:105-7 Ja 9 '15

See also Copper mines and mining

Australia

Cloncurry copper district, Queensland. W. H. Corbould. diagrs Am Inst Min E Bul 97:83-92 Ja '15

State assistance to the mining industry in Australia. Eng & Min J 100:445 S 11 '15

Bolivia

Mining in Bolivia. H. L. Venables. Eng & Min J 99:662 Ap 10 '15

Ownership of Bolivian mines. M. G. F. Schlein. Eng & Min J 99:459 Mr 6 '15

See also Gold mines and mining—Bolivia; Tin mines and mining

British Columbia

Mining in British Columbia in 1914. Eng & Min J 99:121 Ja 9 '15

See also Coal mines and mining—British Columbia

Burma

Bawdwin mines of the Burma corporation. II map plan Eng & Min J 99:177-80 Ja 23 '15

Wolframite in lower Burma. E. M. Lefroy. Eng & Min J 99:684 Ap 17 '15

California

Mining in California in 1914. L. H. Eddy. Eng & Min J 99:107 Ja 9 '15

Pocket deposits of the Klamath mountains, California. H. G. Ferguson. II maps Econ Geol 10:241-61 Ap '15

Seneca mining district, California. W. H. Wright. II map Eng & Min J 99:1072-4 Je 19 '15

See also Petroleum—California

Canada

Mineral production of Canada. J. McLeish. Eng & Min J 99:488-9 Mr 13 '15

See also Coal mines and mining—Canada

Central America

Central America in 1914. Eng & Min J 99:124-5 Ja 9 '15

Chile

Smelting at Panulicillo, Chile. II Eng & Min J 100:787-9 N 13 '15

See also Copper mines and mining; Gold mines and mining—Chile; Iron mines and mining—Chile; Petroleum—Chile; Potash

China

Mining conditions in China. F. L. Garrison. Eng & Min J 100:26-3 Jl 3 '15

See also Iron mines and mining—China

Colorado

Metal mining in Colorado in 1914. G. E. Collins. Eng & Min J 99:108-9 Ja 9 '15

Mining in Boulder county, Colo. Eng & Min J 100:797-8 N 13 '15

Ores of Gilpin county, Colorado. E. S. Bastin. II Econ Geol 10:262-91 Ap '15

See also Gold mines and mining—Colorado

Dominican republic

Minerals of Santo Domingo. F. L. Garrison. Eng & Min J 99:641-4 Ap 10 '15

Great Britain

Mineral production of Great Britain. Eng & Min J 100:6 Jl 3 '15

Idaho

Idaho mining industry in 1914. R. N. Bell. Eng & Min J 99:109 Ja 9 '15

Metallurgy in the Coeur d'Alenes. H. A. McGraw. II Eng & Min J 100:827-30 N 20 '15

New developments in the Coeur d'Alene, Idaho. H. I. Ellis. II Eng & Min J 100:337-40 Ag 28 '15

India

British India. U S Sp Cons Rep 72:413-23 '15

Italy

Mineral output of Italy in 1913. Eng & Min J 99:690 Ap 17 '15

Kentucky

See Coal mines and mining—Kentucky; Petroleum—Kentucky

Kongo, Belgian

Economic geology of the Belgian Congo, Central Africa. S. H. Ball and M. K. Shaler. II map Econ Geol 9:505-63 O '14; Excerpts. Eng & Min J 99:808-11 Ap 3 '15

Katanga increasing its output. R. Williams. Eng & Min J 100:808 Ag 21 '15

Mines and mineral resources—Continued

Mexico

Lost mines. G. L. Sheldon. Eng & Min J 99: 746-8 Ap 24 '15

Main mineral zone of the Santa Eulalia district, Chihuahua. B. Prescott. diag map Am Inst Min E Bul 98:155-98 F '15

Mining in Baja California. Eng & Min J 99: 188-9 Ja 23 '15

Mining in Mexico in 1914. Eng & Min J 99:122-4 Ja 9 '15

See also Petroleum—Mexico

Minnesota

See Iron mines and mining—Minnesota

Montana

Mineral county, Montana, mining notes. H. I. Ellis. Eng & Min J 100:895-6 N 27 '15

Mining in Montana in 1914. T. Simons. Eng & Min J 99:110 Ja 9 '15

Occurrence of covellite at Butte, Mont. A. P. Thompson. II Am Inst Min E Bul 100:645-77 Ap '15; Discussion. 108:2464-71 D '15

See also Coal mines and mining—Montana; Geology—Montana; Petroleum—Montana

Nevada

Mining in Nevada in 1914. Eng & Min J 99: 111-12 Ja 9 '15

See also Gold mines and mining—Nevada

New Mexico

New Mexico in 1914. Eng & Min J 99:112-13 Ja 9 '15

Pinos Altos district, New Mexico. I. L. Wright. II Eng & Min J 99:133-5 Ja 16 '15

Newfoundland

Newfoundland's mineral resources. P. B. McDonald. map Eng & Min J 100:674-5 O 23 '15

Norway

Copper discovery in Norway. A. D. Udhany. Eng & Min J 99:322 F 13 '15

Grong copper and pyrites mines of Norway. A. D. Udhany. II map Eng & Min J 99:389-92 My 22 '15

Oklahoma

Copper deposits in the Red Beds of southwestern Oklahoma. A. E. Fath. II Econ Geol 10:140-50 F '15

See also Coal mines and mining—Oklahoma; Petroleum—Oklahoma

Ontario

Certain mineral occurrences in the Worthington mine, Sudbury, Ontario, and their significance. T. L. Walker. II map Econ Geol 10:536-42 S '15

Mining in Ontario in 1914. T: W. Gibson. Eng & Min J 99:120-1 Ja 9 '15

Oregon

Oregon mining in 1914. W. B. Hartley. Eng & Min J 99:114 Ja 9 '15

Pennsylvania

See Coal mines and mining—Pennsylvania

Peru

Romantic story of vanadium. C. J. Stark. II Iron Tr R 57:781-4+ O 21 '15

Poland

Mines and smelting works of Poland. II map Eng & Min J 99:146-8 Ja 16 '15

Russia

Kyshtim corporation and the effect of the war. Eng & Min J 100:770 N 6 '15

Mining in the Caucasus mountains. L. C. David. II Eng & Min J 99:681-3 Ap 17 '15

See also Gold mines and mining—Russia

Santo Domingo

Copper deposits of San Cristobal. T: F. Donnelly. bibliog II Am Inst Min E Bul 104: 1759-68 Ag '15; Discussion. 108:2473-4 D '15

Sardinia

Calamine mines of Sardinia. C: W. Wright. II map Eng & Min J 100:625-8 O 16 '15

Gennamari mill, Sardinia. C. W. Wright. diags Eng & Min J 100:794-6 N 13 '15

Siberia

Ridder mine of the Irtysh corporation. II map Eng & Min J 99:599-603 Ap 3 '15

See also Gold mines and mining—Siberia

South Africa

Mining conditions on the Witwatersrand. W. L. Honnold. diags Am Inst Min E Bul 104:1601-21 Ag '15

Mining in the Transvaal in 1914. H. F. Marriot. Eng & Min J 99:131-2 Ja 9 '15

Mining on the Witwatersrand. II Eng & Min J 100:320-2 Ag 21 '15

South America

South America in 1914. maps Eng & Min J 99:125-30 Ja 9 '15

See also Coal mines and mining—South America

South Dakota

Mining in South Dakota in 1914. J. Simmons. Eng & Min J 99:113-14 Ja 9 '15

Spitzbergen

See Coal mines and mining—Spitzbergen

Texas

See Petroleum—Texas; Potash

Turkey

Minerals of Asiatic Turkey. map Eng & Min J 100:715-17 O 30 '15

United States

Barite of the Appalachian states. T: L. Watson and J. S. Grasty. bibliog II diags maps Am Inst Min E Bul 98:345-90 F '15

Developing our resources. G: O. Smith. Metal Work 83:533 Ap 9 '15

Occurrence of anhydrite in the United States. A. F. Rogers. II Sch Mines Q 36:123-42 Ja '15

War and our metals. L. O. Kellogg. Eng M 49: 18-27 Ap '15

See also Potash

Uruguay

Mining industry in Uruguay. R. Marstrander. Eng & Min J 99:484 Mr 13 '15

Utah

Alta activities. II Eng & Min J 99:689-90 Ap 17 '15

Metallurgical treatment of the low-grade and complex ores of Utah. D. A. Lyon, R. H. Bradford, S. S. Arentz, O. C. Ralston, and C. L. Larson. U S Bur Mines Tech Pa. 90: 1-39 '15

Mining in Utah in 1914. E: R. Zalinski. Eng & Min J 99:115-16 Ja 9 '15

See also Geology—Utah

Wisconsin

See Zinc mines and mining

Mineville, New York

Housing and sanitation at Mineville. S. Le-fevre. II diags plans Am Inst Min E Bul 98: 227-38 F '15

Minimum wage

Failure of legislative minimum wage. Am Ind 15:11-12 Je '15

Miners' minimum wage in Yorkshire. Engineer 119:66-7 Ja 15 '15

Mining, Hydraulic. See Hydraulic mining

Mining camps

Mine messhouse operation. Eng & Min J 100: 104 Ji 17 '15

Mining claims. See Mineral lands

Mining companies

Abstracts of current decisions on mines and mining, December, 1913, to September, 1914. J. W. Thompson. U S Bur Mines Bul 90: 12-23 '15

Abstracts of current decisions on mines and mining, October, 1914, to April, 1915. J. W. Thompson. U S Bur Mines Bul 101:16-24 '15

Mining companies—Continued

List of companies in North and Central America with financial statistics. Eng & Min J 100:129-30 JI 17 '15
 United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94: pt 2, 914-15 '15

See also Tonopah mining companies

Mining costs

Basic principles of mining cost. J. R. Finlay. Sch Mines Q 36:193-8 Ap '15; Same. Eng & Min J 100:878-80 N 27 '15
 Centrifugal mine pumps on the Rand. E. G. Izod and A. P. Rouillard. diags Eng & Min J 99:1115-18 Je 26 '15
 Churn-drilling costs. C. H. Palmer, jr.; H. P. Bowen. Eng & Min J 99:20-1 Ja 2 '15
 Comparative costs of operating. G. S. Brackett. Colliery 36:132-4 O '15
 Cost of an ounce of gold. P. E. Barbour. Eng & Min J 100:49-50 JI 10 '15
 Cost of drilling with well drilling machines in ore prospecting. C. H. Palmer, jr. Eng & Contr 48:203-3 Mr 3 '15
 Cost of initial mining excavations. E. D. Gardner. Assn Eng Soc J 54:110-19 My '15
 Cost of mine openings. E. D. Gardner. Eng & Min J 100:791-4 N 13 '15
 Cost of mining in Alaska. Eng & Min J 100: 480-1 S 18 '15
 Cost of producing lead. Eng & Min J 98:1073-4 D 19 '14
 Cost of sinking 900-ft. shaft. H. A. Linke. diags Eng & Min J 100:845-7 N 20 '15
 Details of costs at El Tigre. Eng & Min J 98: 1047 D 12 '14
 Hollinger mining and milling costs. Eng & Min J 99:908 My 22 '15
 Milling at the Nipissing mines co. Eng & Min J 99:1124 Je 26 '15
 Mining costs at Goldfield. Eng & Min J 99:909 My 22 '15
 Operating costs at a small Mexican mine. R. H. Allen. Eng & Min J 99:1122-4 Je 26 '15
 Reduction of Rand costs. Eng & Min J 99: 896 My 22 '15
 Stopping costs at iron mines, Mineville, N. Y. Eng & Min J 100:847 N 20 '15
 Tests of large steam hoists. H. E. Spring. Gen Elec R 13:179-89 Mr '15
 Tonopah Belmont mine. Eng & Min J 100:272 Ag 14 '15
 Why anthracite mining is expensive. Colliery 35:283 D '14

See also Drilling and boring (earth and rocks)—Cost; Mine haulage—Cost

Mining débris

United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94: pt 2, 933-45 '15

Mining dividends. See Mining industry and finance

Mining engineering

Backstopping with breast holes. H. K. Sherry. il Eng & Min J 100:354 Ag 28 '15
 Coal stripping in Illinois. il Colliery 36:69-72 S '15
 Develop nation's oldest iron mine: Empire steel & iron co.'s Mount Hope properties. H. M. Roche and J. C. Stoddard. il plans Iron Tr R 57:171-6+ JI 22 '15
 Drifting with a stoper. G. E. Wolcott. diags Eng & Min J 99:860 My 15 '15
 Earth tremors on the Rand. A. C. Key. Eng & Min J 100:833-4 N 20 '15
 Elderlinzsky gold mines. N. T. Truschkoff. il Eng & Min J 99:1017-21 Je 12 '15
 Five-hole cut. Eng & Min J 99:1083 Je 19 '15
 Five-hole cut. H. A. Morrison. diags Eng & Min J 99:956 My 29 '15
 Institution of mining engineers general meeting in London, June 10. Engineer 119:610-11 Je 18 '15
 Limits of mining under heavy wash. D. Bunting. diags plan Am Inst Min E Bul 97:1-21 Ja '15; Discussion. 101:1187-9 My '15
 Mining camp without a peer: revolutionary methods at Bingham. Uah. G. F. Stratton. il Sci Am S 80:241+ O 16 '15
 Mining in the Caucasus mountains. L. C. David. il Eng & Min J 99:681-3 Ap 17 '15

Mining low-grade copper ore by Ray Consolidated. A. N. Penny. diags Eng & Min J 99: 767-70 My 1 '15

Mining methods at Park City, Utah. J. Humes. map Am Inst Min E Bul 98:479-81 F '15

Mining methods of the Arizona copper co. F. B. Scotland. diags plans Am Inst Min E Bul 98:483-96 F '15

Mining methods on Gogebic range. O. E. Olson, O. M. Schaus and F. Blackwell. diags Iron Tr R 57:735-7 O 14 '15

Mining ore from a caved stope. J. E. Harding. diags Eng & Min J 100:71-3 JI 10 '15

Mother Lode blast. F. S. Norcross, jr. il Eng & Min J 99:931-5 My 29 '15; Abstract. Eng M 49:920-3 S '15

Notes on shrinkage stopping. E. H. Dickenson and H. J. Volker. diags Eng & Min J 100: 875-7 N 27 '15

Oxyacetylene welding in mining. il diags Eng & Min J 99:393-7 F 27 '15

Packs, sand filling and solid pillars. Eng & Min J 100:393-4 S 4 '15

Primer on explosives for metal miners and quarrymen. C. M. Munroe and C. Hall. diags pls U S Bur Mines Bul 80:1-117 '15

Removing ore under timbered drift. H. H. Hodgkinson. diags Eng & Min J 99:657 Ap 10 '15

Sand filling. Eng & Min J 99:862 My 15 '15

Stopping methods at Fairbanks. H. I. Ellis. il Eng & Min J 100:503-6 S 25 '15

Tom Hunter, hoisting engineer. W. O. Rogers. il Power 39:46-8, 236-8, 372-4; 40:922-4; 42: 678-80 Ja 13, F 17, Mr 17, D 29 '14, N 18 '15

Underground crushing and loading arrangements. A. E. Hall. diags Eng & Min J 99: 192-3 Ja 23 '15

Underground mining systems of Ray consolidated copper co. L. A. Blackner. il diags Am Inst Min E Bul 102:1249-90 Je '15

Wisconsin zinc district. H. C. George. il Eng & Min J 100:341-4 Ag 23 '15

See also Blasting; Coal mines and mining; Drilling and boring (earth and rocks); Electricity in mining; Hydraulic mining; Iron mines and mining; Mine construction; Mine drainage; Mine haulage; Mine hoisting; Mine management; Mine shafts; Mine shops; Mine surveying; Mine timbering; Mine ventilation; Mines and mineral resources; Mining engineers; Mining machinery; Mining schools and education; Rock drills; Shaft sinking; Tunnels

Classification

Indexing and filing technical literature. A. R. Kenner. Eng & Min J 99:851-6 My 15 '15

Examinations

Answers to examination questions for mine foreman and fire boss in various states in 1914. Colliery 35:447-50 Mr '15

Answers to examination questions for mine foreman and fire boss in various states in 1915. Colliery 36:163-5 O '15

Questions selected from those asked at an examination for mine foreman, held in Price, Utah, September 15 and 16, 1914. Colliery 35: 217-20, 276-9, 338-41 N '14-Ja '15

Questions selected from those asked at examinations for mine foreman and fire boss in various states in 1915. Colliery 36:50+ , 105-7 Ag-S '15

Power

Electric power in South Wales collieries. Elec R & W Elec'n 67:764 O 23 '15

Electrical plant of the Wakefield iron co., Wakefield, Mich. H. I. Pearl and J. Green. il plan Eng & Min J 100:349-51 Ag 23 '15

Gas producers and concentration of power at mines. R. H. Fernald. Colliery 35:415-17 Mr '15

Hydro-electric and compressor plants at Chapin mine. L. E. Ives. Eng & Min J 99:314 My 22 '15

Power supply of the Central mining-Rand mines group. J. H. Rider. il diags Inst E E J 53:609-32; Discussion. 53:633-40, 736-43, 838-43 My 1-15, Je 15 '15

Rossiter, Pa., power plant. il Colliery 35:633-6 JI '15

Mining engineering—Power—Continued

Tom Hunter, hoisting engineer. W. O. Rogers. *il* Power 40:322-4; 41:160-2, 42:548-50 D 29 '14, F 2, O 13 '15
 Wood as a fuel for mine power plants. E. A. Holbrook. *diags* Eng & Min J 99:645-7 Ap 10 '15

Safety measures

Accident prevention by the New Jersey zinc co. B. F. Tillson. Eng & Min J 98:1034-9 D 12 '14
 Electric shot firing in Oklahoma. Colliery 35: 408-9 Mr '15
 Electrical equipment rules. Colliery 35:673-4 J1 '15
 Finger guard on tram car. A. E. Hall. *diag* Eng & Min J 100:475 S 18 '15
 Improved safety door for dump. H. H. Hodgkinson. *diags* Eng & Min J 100:436 S 11 '15
 Permissible explosion-proof electric motors for mines; conditions and requirements for test and approval. H. H. Clark. *il* U S Bur Mines Tech Pa 101:1-14 '15
 Prevention of overwinding and overspeeding in shafts. G. G. T. Polle. Colliery 36:20-2 Ag '15
 Respirators vs. water sprays. Eng & Min J 100:856-7 N 20 '15
 Safeguarding the use of mining machinery. F. H. Kneeland. Am Inst Min E Bul 97:61-5 Ja '15; Discussion. 101:1073-4 My '15
 Safety around surface tracks. Eng & Min J 99:279-80 F 6 '15
 Safety rules for Wisconsin zinc mines. Eng & Min J 99:24-6 Ja 2 '15
 Tentative mine-safety rules in California. L. H. Eddy. Eng & Min J 99:1043-4 Je 12 '15

See also Coal mines and mining—Safety measures; Mine signals; Mining laws; Safety lamps

Mining engineers

American institute of mining engineers; officers, members, rules, etc. Am Inst Min E Bul 101:supl-190 My '15
 Directory of engineers. Eng & Min J 99:sup 32-8 Ja 16 '15
 Engineer's life. A. R. Ledoux. Eng M 49:742-3 Ag '15

Mining industry and finance

Chronology of mining for 1914. Eng & Min J 99:86-8 Ja 9 '15
 Company reports. Eng & Min J 99:197-9; 100: 63-5 Ja 23, J1 10 '15
 Data of the world's principal mines. S. F. Shaw. Eng & Min J 99:84-5 Ja 9 '15
 First move; mining engineers as organizers. W. G. Swart. Eng & Min J 98:164-5 Ja 16 '15
 How to write mining prospectuses; satire. Eng & Min J 99:183-4 Ja 23 '15
 Influence of the European war on the mining industry of Dutch Guiana. F. B. Percival. Eng & Min J 99:415 Mr 6 '15
 Mine and metallurgical construction in 1914. Eng & Min J 99:78-80 Ja 9 '15
 Mining dividends in 1914. Eng & Min J 99: 81-4 Ja 9 '15
 Ore reserves of the Rand. A. C. Key. Eng & Min J 100:139-40 J1 24 '15
 Production of minerals and metals in 1914. Eng & Min J 99:45-77 Ja 9 '15
 Scandinavian mining and metallurgical notes. Eng & Min J 99:630-1 Mr 20 '15

See also Mine accounting; Mine valuation; Mining costs

Mining Institute, Canadian. *See* Canadian mining institute

Mining institutes

Mining institute meetings; winter meetings of the Illinois coal mining institute, the Coal mining institute of America, and the Kentucky mining institute. Colliery 35:325-30 Ja '15

See also Lake Superior mining institute

Mining laboratories

Mining laboratory of the Missouri School of mines. C. R. Forbes. *il* plan Eng & Min J 99:809-11 F 13 '15

Mining laws

Abstracts of current decisions on mines and mining, December, 1913, to September, 1914. J. W. Thompson. U S Bur Mines Bul 90:1-175 '15

Abstracts of current decisions on mines and mining, October, 1914, to April, 1915. J. W. Thompson. U S Bur Mines Bul 101:1-136 '15
 Apex litigation at Tonopah. *diags* map, Eng & Min J 99:660-1, 897-8 Ap 10, My 22 '15
 Application of the apex law at Wardner, Idaho. F. T. Greene. *diags* Am Inst Min E Bul 101: 611-18 My '15

Arizona mining legislation. Eng & Min J 99: 611 Ap 3 '15

Defects of the United States mining law. C. De Kaib. Am Inst Min E Bul 98:331-7 F '15; Discussion. 101:1201-3; 103:1462-6 My, J1 '15

More Mexican mining law. Eng & Min J 100: 638 O 23 '15

New mining edict in Mexico. Eng & Min J 99: 668-9 Ap 10 '15

Opinions and laws with regard to health conditions in foreign mines. A. J. Lanza and E. Higgins. U S Bur Mines Tech Pa 105: 44-7 '15

Requirements for prospecting dredging ground in the Yukon. J. A. Macdonald. Eng & Min J 99:828-9 My 8 '15

Revision of mining laws urged. H. V. Winchell. Eng & Min J 100:239 Ag 7 '15

Rules and regulations for metal mines. W. R. Ingalls and others. U S Bur Mines Bul 75: 1-283 '15

Russian mining laws protect the worker. L. C. David. Eng & Min J 100:51 J1 10 '15

Staking out mineral claims in Ontario. J. A. Macdonald. *diag* Eng & Min J 99:324-5 F 13 '15

United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:1-1772 '15

Validity of statute regulating coal mines. Colliery 35:268 D '14

Yukon placer mining regulations. J. A. Macdonald. Eng & Min J 99:156-7 Ja 16 '15

See also Mine taxation; Mineral lands

Mining machinery

Hydraulic mining cartridge. J. Tonge. *il* *diags* Sci Am S 79:156-8 Mr 6 '15

Manganese-steel castings in the mining industry. W. S. McKee. *il* *diag* Am Inst Min E Bul 108:2309-411 D '15; Same. Iron Tr R 57:1077-81 D 2 '15

Men and machinery of the Comstock—the combination shaft. G. W. Dickie. *il* Eng & Min J 98:990-4 D 5 '14

Mine motors, with special reference to electric motors. E. Drennen. Colliery 35:241-5 D '14

Multistage centrifugal and Cornish pumps in Chapin mine. L. E. Ives. *il* *diag* Eng & Min J 99:867-8 My 15 '15

Safeguarding the use of mining machinery. F. H. Kneeland. Am Inst Min E Bul 97:61-5 Ja '15; Discussion. 101:1073-4 My '15

Use and abuse of oil at mines. C. T. Thomsen. Colliery 35:665-8 J1 '15

Use of electricity in mining work. D. B. Rushmore. *il* Gen Elec R 18:527-39 Je '15

See also Conveying machinery; Electricity in mining; Excavating machinery; Hoisting machinery; Mine hoisting; Rock drills; Shoveling machines; Steam shovels

Mining prospectuses

How to write mining prospectuses; satire. Eng & Min J 99:183-4 Ja 23 '15

Mining schools and education

Address at testimonial dinner. H. S. Munroe. Eng & Min J 99:998-1001 Je 5 '15

New era in mining education. C. F. Willis. Eng & Min J 99:1128 Je 26 '15

School of mines in South Wales. *il* Colliery 35:249-51 D '14

See also Mining laboratories

Mining terms

Abstracts of current decisions on mines and mining, October, 1914, to April, 1915. J. W. Thompson. U S Bur Mines Bul 101:13-16 '15

Mining towns

Anaconda's community experiment. *il* Eng & Min J 100:880-1 N 27 '15

Housing and sanitation at Mineville. S. Leffevre. *il* *diags* plans Am Inst Min E Bul 98:227-38 F '15

Mining towns—Continued

Plucking the goose as town policy. Eng & Min J 100:877-8 N 27 '15

Social improvement at Lead, S. D. Eng & Min J 190:798-9 N 13 '15

See also Miners' houses

Minneapolis, Minnesota**Railroads**

Track depression at Minneapolis. diags Eng N 73:514-17 Mr 18 '15

Track depression work of the C. M. & St. P. Ry. at Minneapolis. Il Ry R 57:69-72 Jl 17 '15

Water supply

Minneapolis loses filter infringement suit. Eng Rec 72:191 Ag 14 '15

Minneapolis, St. Paul & Sault Ste. Marie railway

Twenty-seventh annual report. map Ry Age 59:586, 926-8 N 12 '15

Minneapolis Institute of arts

Beginnings of the recently opened Institute of arts. B. H. Hewitt. Am Inst Arch J 3: 85-6 F '15

Minnesota electrical association

8th annual convention, St. Paul, March 23-25. Elec R & W Elec'n 66:537-41 Ap 3 '15

Minnesota electrical contractors' association

Semi-annual convention, Minneapolis, Minn., Jan. 27. Elec R & W Elec'n 66:246 F 6 '15

Minnesota state association of master plumbers

20th annual convention, St. Paul, Feb. 23-24. Dom Eng 70:278-80 F 27 '15

Mirrors

French process for electroplating mirrors with copper. Il Elec R & W Elec'n 66:922-3 My 15 '15

Protecting silvered mirrors by copper plating. Il diag Sci Am S 79:28 Ja 9 '15

Mississippi delta

Continual subsidence of the Mississippi delta. E. L. Corthell. Eng N 73:597 Mr 25 '15

Mississippi river

Experimental Mississippi river levees indicate possibility of eliminating seepage. C. O. Sherrill. Il plan Eng Rec 71:552-4 My 1 '15

Methods of creating and maintaining channels at mouths of fluvial and tidal rivers. E. L. Corthell. Eng Rec 71:42 Ja 9 '15

Mississippi river problem. G. B. Cleveland, Jr. Sci Am 112:33 Ja 23 '15

Mississippi river; written for the new International encyclopedia. J. W. Woermann. bibliog Assn Eng Soc J 55:37-66 S '15

Plans for a typical condition of Mississippi bottom land drainage. map Eng & Contr 43: 490-1 Je 2 '15

Port improvements along the Mississippi and Ohio rivers. Eng N 73:1066-8 Je 3 '15

Water terminals on the Mississippi river. Eng N 73:507 Mr 11 '15

Missouri, Kansas & Texas railroad

Statistics for the fiscal year ended June 30, 1914. Ry Age 58:82-3 Ja 15 '15

Missouri Pacific railroad

Abstract of annual report. map Ry Age 59: 793-5 O 29 '15

Semi-centennial of the Missouri Pacific. Ry R 57:433 O 2 '15

Missouri public utilities association

Convention cruise, May 27-30. Elec R & W Elec'n 66:1052-4 Je 5 '15

Missouri river

Missouri river improvement work may be stopped. H. Deakyn. Eng N 74:409 Ag 26 '15

Missouri river navigation. Eng N 74:561-2 S 16 '15

Proposed Missouri-Meramec river hydro-electric power development; committee report. Assn Eng Soc J 55:32-6 Jl '15

Missouri School of mines

Mining laboratory of the Missouri School of mines. C. R. Forbes. Il plan Eng & Min J 99:309-11 F 13 '15

Mitchell, Mt.

Destroying Mt. Mitchell. R. Pullman. Il Am For 21:82-93 F '15

Mt. Mitchell trail. H. W. Plummer and N. Buckner. Il Am For 21:94-9 F '15

Mnemonic symbols. See Symbols, Mnemonic

Model towns

Details of an interesting plan for developing a large community settlement. Il Iron Tr R 57:98 Jl 8 '15

Factory city beautiful at low cost. Badin, N. C. Il plans Iron Age 95:782-6 Ap 8 '15

Model city near new steel plant; Morgan Park. R. V. Sawhill. Il plan Iron Tr R 57:647-9 S 30 '15

Modeling

See also Plaster casts

Models

Model experiments and the forms of empirical equations. E. Buckingham. Am Soc M E J 37:531-2; Discussion. 37:532-4 S '15

Model record of distribution of construction plant. Il Eng N 74:218-19 Jl 29 '15

Models, properly designed, show correctly performance of dams and turbines. B. F. Groat. Eng Rec 72:377-8 S 25 '15

See also Locomotives—Models; Mine models; Panama canal—Model

Models, Geographical

Table-top geography; hints on the construction of simple models. P. Collins. Il Sci Am 113:270 Mr 20 '15

Models, Mine. See Mine models**Mohair**

Mohair fabric. Il Textile World 49:571 Ag '15

Molature of the air. See Humidity**Molding. See Foundry practice****Molding machines**

Automatic molding machine. Il Iron Age 95: 241 Ja 28 '15

B and B molding machine. Il Metal Ind n s 13:296 Jl '15

Compressed air moulding machine. Il diags Engineer 119:189-90 F 19 '15

Electrically operated jolt roll-over molding machine. Il Iron Age 96:675 S 23 '15

Foundations for jar-ramming molding machines. E. S. Carman. Il diags Foundry 43: 420-3 O '15; Same. Iron Tr R 57:1180-3 D 16 '15

Getting the most from molding machines. P. R. Ramp. diags Iron Age 96:1-4 Jl 1 '15

Home-made molding machines. W. H. Parry. Metal Ind n s 13:155 Ap '15

How sewing machine parts are molded and cast. H. C. Estep. Il Foundry 43:345-51 S '15

How to make automobile engine castings. Il Foundry 43:291-4 Ag '15

Jolt and squeezer molding machine. Il Iron Age 96:1100 N 4 '15

Jolt stripping plate machine. Il Iron Tr R 56: 225+ Ja 28 '15

Molding and casting large tunnel segments. L. J. Josten. Il diags Foundry 43:356-9 S '15

Molding machines and pattern mounting. J. F. Ervin. Iron Age 95:721-4 Ap 1 '15

Osborn molding machine. Il Foundry 43:79-80 F '15

Pneumatic rock-over molding machine. Il Iron Age 96:751 S 30 '15

Pneumatic vibrator for molding machines. Il Iron Age 96:750 S 30 '15

Squeezer type molding machine. Il Iron Age 95: 1166 My 27 '15

Molding sand. See Sand, Foundry**Molecular movements. See Brownian movements****Molecular weights**

Interpretation of molecular weight results from measurements on solutions. W. H. S. Turner. Am Chem Soc J 37:2068-4 S '15

Molecular weight of sodium carbonate and the atomic weight of carbon referred to silver and bromine. T. W. Richards and C. R. Hoover. Am Chem Soc J 37:95-107 Ja '15

Molecular weight of sodium sulfate and the atomic weight of sulfur. T. W. Richards and C. R. Hoover. Am Chem Soc J 37:108-13 Ja '15

Molecules

Atoms, molecules and electrons. N. W. Rakestraw. Sci Am S 80:254-6 O 16 '15

Molecules—Continued

Some aspects of the atomic theory. F. Soddy. *Sci Am S* 80:178-9 S 18 '15
Theory of valency and molecular structure. W. C. Arsen. *diags Am Chem Soc J* 86: 1655-75 Ag '14
See also Atoms; Molecular weights; Optical rotation; Stereochemistry

Moline, Kansas**Water supply**

Underflow water-supply at Moline, Kan. W. L. Benham. *Eng N* 73:925-6 My 13 '15

Molybdenite

Canadian molybdenite deposits. W. H. Smith. *Eng & Min J* 99:271-2 F 6 '15
Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *U S Bur Mines Bul* 77:146-51 '14

Molybdenum

Atomic weight of molybdenum. J. H. Müller. *diags Am Chem Soc J* 37:2046-54 S '15
Molybdenum and copper. C. Vickers. *Foundry* 43:344+ S '15
Separation of tungsten from molybdenum. E. E. Marbaker. *Am Chem Soc J* 37:86-95 Ja '15

Molybdic acid

Molybdic acid recovery. C. G. Armstrong. *J Ind & Eng Chem* 7:784 S '15
Recovery of molybdic acid. W. D. Brown. *J Ind & Eng Chem* 7:213-14 Mr '15; Same. *Iron Tr R* 56:1058 My 27 '15

Moments of Inertia

Moment of inertia of a rectangle by elementary method. W. H. Gravell. *Eng N* 73: 1073 Je 3 '15

Monazite

Brazilian monazite. *Eng & Min J* 100:759 N 6 '15
Monazite, thorium, and mesothorium. K. L. Kithil. *biblog flow sheet U S Bur Mines Tech Pa* 110:1-30 '15
Thorium; an American industry—no danger of a shortage. T. Owens. *Am Gas Light J* 103:187-8 S 20 '15

Monel metal

Casting monel metal. *Mach* 21:584 Mr '15
Failure of the hull of the Sea Call. *II Met & Chem Eng* 13:884 D 1 '15
Galvanic corrosion damages hull of yacht. *Eng N* 74:522-3 S 9 '15
Monel metal boat. *II Metal Ind n s* 13:813 Ag '15
Monel metal in water-works and other engineering service. *Eng N* 73:890 My 6 '15

Money

See also Credit

Monochloroacetic acid

Action of monochloroacetic acid on semicarbazide and hydrazine. J. R. Bailey and W. T. Read. *Am Chem Soc J* 36:1747-86 Ag '14

Monopolies

Clayton act and the exclusive agent. E. J. Buckley. *Metal Work* 82:835 D 25 '14
Private monopoly and present public opinion. G. O. Smith. *Metal Work* 83:924+ Je 25 '15
See also Trusts, Industrial

Monorailways. See Suspended railways**Monotype**

Modern methods of composing type. *II Sci Am S* 80:324 N 20 '15
Monotype accounting problems. C. D. Bollinger. *Inland Ptr* 55:473-5 Jl '15
Monotype in a trade plant. J. H. Walden. *Inland Ptr* 56:207-8 N '15
Signs of the times in composing-machinery. C. D. Bollinger. *Inland Ptr* 56:184-6 N '15

Monroe doctrine

Monroe doctrine and Latin-American commerce. L. G. Valentine. *Am Ind* 15:18-19+ Ap '15

Montana**Industries and resources**

Bull mountain coal field. J. P. Rowe and R. Wilson. *maps Colliery* 36:7-11, 74-9 Ag-S '15

Probable oil and gas in Montana. J. P. Rowe. *Eng & Min J* 99:647-9 Ap 10 '15

See also Mines and mineral resources—Montana

Montana power company

System of the Montana power company. M. Hebggen. *II map Elec W* 65:1535-44 Je 12 '15

Montgomery Ward & co.

Kansas City building of Montgomery Ward & co. *II plan Arch & Bldg* 47:35-40 Ja '15

Montreal, Canada**Bridges**

Late Thomas C. Keefer and the plans for the Victoria bridge at Montreal. *Eng N* 73:179-80 Ja 28 '15

Galleries and museums

Montreal art gallery. T. W. Ludlow. *II plans Arch Rec* 37:132-48 F '15

Railroads

Completing the Mount Royal tunnel into Montreal. *II diags plan Ry Age* 59:857-60 N 5 '15

Montrose, Colorado**Water supply**

Second rebuilding of the water-works of Montrose. P. W. Pinkerton. *Eng N* 73:883-4 My 6 '15

Monuments

War monuments. *Am Inst Arch J* 3:151-2 Ap '15

See also Inscriptions

Moorestown, New Jersey**Sewerage**

Converting old septic tank and contact beds into two-story tank and sprinkling filters at Moorestown. A. Potter. *II plans Eng & Contr* 43:473-6 N 13 '14

Morgan building, New York

Banking house of J. P. Morgan & co. *II plans Arch & Bldg* 47:5-14 Ja '15

Morgan Park, Minnesota

Model city near new steel plant. R. V. Sawhill. *II plan Iron Tr R* 57:647-9 S 30 '15

Morris, John Lewis

Professor of practical mechanics, Sibley college, 1868-1904. D. S. Kimball. *por Sibley J* 29:315-19 Je '15

Morris, William, 1834-1896

Literature of typography. H. L. Bullen. *por Inland Ptr* 55:61-3 Ap '15

Morristown, New Jersey**Railroads**

New passenger station of the D. L. & W. R. R. *II plans Ry R* 55:735-41 D 19 '14

Sewerage

Sewage-works of Morristown. C. Potts. *II diags plan Eng N* 73:1105-8 Je 10 '15

Mortality

Diseases dangerous at different periods of life. *Sci Am S* 79:149-50 Mr 6 '15
Why do men over forty break down? C. F. Bolduan. *Sci Am* 118:63 Jl 17 '15

Mortar

Comparative tests of hardness, toughness and strength of mortar; diagrams. C. H. Moorefield and J. T. Voshell. *Eng & Contr* 44:270 O 6 '15

Effect of fineness of sand and of clay and loam on the strength of mortar. F. L. Roman. *Eng & Contr* 43:403-6 My 5 '15
How consistency and age affect strength of mortar. *Eng Rec* 72:484 O 16 '15

Lime and Portland cement. *Sci Am S* 80:343 N 27 '15

Manufacture of mortar. *Sci Am S* 80:332 N 20 '15

Mixture of mortar for laying up block walls. *Concrete Cem* 6:39 Ja '15

Routine tests for determining strength of mortars. H. Ferrine. *II Eng Rec* 71:85 Ja 16 '15

Mortar—Continued

Sand for concrete and cement mortar should have jump in grading. R. H. McNeilly. Eng Rec 72:669-62 N 27 '15
 Tests to determine the effect of normal and low temperatures on the strength of cement mortar. Eng & Contr 43:196-7 Mr 3 '15
See also Cement; Lime

Mortars (ordnance)

Austria's famous Skoda mortars. Il Sci Am 113:12 J1 8 '15
 Rifles and mortars. Il diags Sci Am 111:472-3 D 5 '14

Mosquitoes

Malaria and the transmission of diseases. R. Ross. Sci Am S 79:50-1 Ja 23 '15
 Malarial mosquitoes as the food of bats. C. H. R. Campbell. Il Sci Am 113:425 N 13 '15

Moths

Flour moths and army rations. W. P. Pycraft. Il Sci Am S 80:333 N 20 '15

Motion

Apparatus for demonstrating Newton's laws. H. W. Harmon. diag Sci Am S 79:42-3 Ja 16 '15

See also Mechanics

Motion pictures. *See* Moving pictures

Motion study

Eliminating waste motion in molding. R. E. Kennedy and J. C. Pendleton. Il Iron Age 94:662-4 S 17 '14; Same. Ind Eng 14:423-6 N 14 '14

Industrial coach; how the efficiency engineer studies the human machine. Il Sci Am 113:402-3 N 6 '15

Motion study for the crippled soldier. F. B. Gilbreth. Il Am Soc M E J 37:669-73; Discussion. 37:673-5 D '15

Motor barges

Development of inland water transportation. J. H. Bernhard. Eng Rec 72:332-4 S 11 '15
 Modern self-propelled barge for the Mississippi river. Il plans Int Marine Eng 20:497-9 N '15

Motor boat Kern. Il plan Int Marine Eng 20:489 N '15

New Mississippi river barges with deck gantries. J. M. Sweeney. Eng N 74:668-9 S 30 '15

Performance of the shallow-draft producer-gas barge Richmond of the Augusta-Savannah barge line. Il Int Marine Eng 20:274 Je '15

Motor boats

Application of electricity to propulsion: fifty-foot motor boat equipped with electric drive for experimental purposes. W. T. Donnelly. Il diags Int Marine Eng 20:204-8 Mr '15

Boat engines. Metropolitan S. A. E. topic. Horseless Age 35:446 Mr 31 '15

Diesel motor tug Chickamauga. G. E. Nicholson. Il Int Marine Eng 20:493-5 N '15

Motor fire boat Delta II. Il Int Marine Eng 20:492-3 N '15

Novel idea in boat construction. Il Sci Am 113:269 S 25 '15

See also Motor barges

Motor buses

Auto-bus as an auxiliary to interurban railways. A. W. Leonard. Il Elec Ry J 46:570-1 S 18 '15

Auto-bus in London. H. H. Gordon. Elec Ry J 45:888 My 8 '15

Better bodies on Paris motor buses. Il Automobile 32:369 F 25 '15

Cost of bus operation. Il Elec Ry J 45:414-17 F 27 '15

Low two-story motor busses with novel seating system introduced in Vienna. diags Automobile 32:157-9 Ja 21 '15

Novel form of motor bus for interurban service between Minneapolis and St. Paul. Il Elec Ry J 46:29-30 J1 3 '15; Eng N 74:56 J1 8 '15; (Highway chair car). Sci Am 113:228 S 11 '15

One-man, pay-enter motor bus design. diags Automobile 32:641 Ap 8 '15

Operating costs for omnibuses in Sheffield, England. Elec Ry J 46:673 O 2 '15

Stepless bus with electric transmission. Il Automobile 32:159 Ja 21 '15

Stepless omnibuses in New York. Il Sci Am 111:495 D 12 '14

Testing the equilibrium of double-deck buses at Vienna. Il Elec Ry J 44:1808 D 12 '14

Well construction of Vienna auto-bus. Il diags Elec Ry J 46:49 Ja 2 '15

See also Electric buses; Jitney buses

Motor buses, Steam

Fixed calorific standard—a new use for gas coke. N. H. Humphrys. Am Gas Light J 102:73 F 1 '15

New coke fired road vehicle. Il diags Engineer 119:526-7 My 28 '15; Abstract. Eng M 49:740-1 Ag '15

Motor cars. *See* Automobiles; Electric vehicles; Motor trucks

Motor cars (railroad)

Efficiency of motor cars for section forces. G. R. Morrison. Ry Age 59:527-8 S 17 '15; Same. Ry R 57:345-6 S 11 '15

Gasoline motor car on rails in the Pacific northwest. Il Elec Ry J 46:1080 N 27 '15

Inspecting steam railroads with a gasoline car. Il Sci Am 112:588 Je 12 '15

Motor cars for railways. Sci Am S 80:285 O 30 '15

Petrol rail coach engine. diags Engineer 119:426-7 Ap 30 '15

Railway inspection car follows automobile design. Il Automobile 32:813 My 6 '15

Record-breaking gasoline motor car. Il Elec Ry J 45:1215-16 Je 26 '15

Simplex rail coach. Il Engineer 119:386-8 Ap 16 '15

Thomas transmission rail coach. Il diags Engineer 120:42-3 J1 9 '15

300-hp. gasoline motor car for fast passenger service. Il Eng N 73:1094-5 Je 3 '15

Value of motor cars. W. R. McKeen. Ry Age 59:816-17 O 29 '15

Storage battery

Large storage battery car for Cambria & Indiana railway. Il Elec Ry J 44:1356 D 19 '14

Trailers

Long Island railroad adopts light, steel trailers. Il diags Elec Ry J 46:136-8 J1 24 '15

Motor cars (street railroad)**Storage battery**

Street railway service being inaugurated in Miami, Fla., with storage-battery cars. Il diag Elec Ry J 46:920-1 O 30 '15

Motor chairs. See Wheel chairs, Electric**Motor cycles**

Location of motorcycle power plant troubles: chart. V: W. Page. Sci Am 112:314-15 Ap 3 '15

Machining motor cycle parts. D. T. Hamilton. Il Mach 21:377-80 Ja '15

Rise of the motorcycle. Sci Am 112:581+ Je 5 '15

Sheet metal side car attachment. Il Metal Work 84:405 S 24 '15

Motor cycles in war

Motorcycling under fire. Sci Am 112:42 Ja 2 '15

War uses of the motorcycle: cycle ambulance and motor machine gun. Il Sci Am 112:138+ F 6 '15

Motor-cycling under fire. Sci Am 112:42 Ja 2 '15**War uses of the motorcycle: cycle ambulance and motor machine gun. Il Sci Am 112:138+ F 6 '15****Motor-generators**

Direct-current three-wire systems. G. Fox. diags Power 41:505-8 Ap 13 '15

Hertner vertical charging set. Il Elec R & W Elec'n 66:699 Ap 10 '15

Large motor-generator in San Francisco. Il Elec R & W Elec'n 66:1165-6 Je 19 '15; Elec W 65:1587 Je 12 '15

Motor-generators versus rotary converters. E. Friedlander. Power 42:458 S 28 '15

New motor-generator set for charging automobile batteries. Il Elec R & W Elec'n 67:383 Ag 28 '15; Elec W 66:485 Ag 28 '15

Motor omnibuses. See Motor buses**Motor plows**

Coming of the motor plough. Il diag Engineer 120:361-4. 408-10 O 15, 29 '15

Ford tractor plows 5 to 10 acres per day at a cost of \$3.10. Automobile 32:584 S 23 '15

Motor plough. Il diags Engineer 119:386 Ap 16 '15; Same. Automobile 32:812 My 6 '15

Motor ships

- Diesel engine applied to marine purposes. C. Kloos. *Il diags Power* 42:734-8 N 23 '15
 Installation of 120 horsepower Bolinder oil engine in pilot schooner Gracie S. *Il plans Int Marine Eng* 20:158-60 Ap '15
 Large Diesel engine ships for marine navigation and their economic possibilities; abstract. W. Scholz. *Am Soc M E J* 37:328-30 Ap '15
 Motor ship Gallia. *Il diags Int Marine Eng* 20:420-1 S '15
 Motor ship Tongking. *Il Int Marine Eng* 20:64-5 F '15
 Motorship Pacific. *Int Marine Eng* 20:516 N '15
 Performance of Diesel-engined motor ships. *Int Marine Eng* 20:331 S '15
 Performance of motor ships. *Engineer* 119:65-6, 322 Ja 15, Ap 2 '15
 Revival of the reversible blade propeller. *Il diags Engineer* 119:295-7, 308 Mr 26 '15
 Trials of the submarine tender Fulton; first United States naval vessel to be fitted with Diesel engines. *Il Int Marine Eng* 20:76-8 F '15
 Werkspoor motor ships in service. T. O. Lidla. *Int Marine Eng* 20:23-6 Ja '15
See also Diesel engines, Marine; Gas and oil engines, Marine; Motor boats

Motor spirit

- Low-temperature coal distillation. F. M. Perkin. *J Ind & Eng Chem* 7:352 Ap '15
 Two improvements devised for motor spirit process. *diag Automobile* 33:533 Mr 25 '15

Motor truck industry

- Beginning of a new epoch in the motor truck industry. *Sci Am* 113:396 My 1 '15
 Demonstrations—necessity and charges. J. C. Avers. *Horseless Age* 35:940-3 F 17 '15
 Directory of truck makers; 253 vehicles, their makers and capacities. *Automobile* 32:62-4 Ja 14 '15
 Field for 750,000 trucks. *Automobile* 31:1169 D 24 '14
 Influence of war on industrial transportation. *Sci Am* 113:452-4 N 20 '15
 Metropolitan section of S. A. E. discusses truck makers' obligations to customers. B. B. Bachman. *Automobile* 32:772-3 Ap 29 '15
 Motor truck problem. *Sci Am* 112:611 Je 19 '15
 Résumé of papers read before convention of motor truck manufacturers and dealers at Detroit. *Horseless Age* 35:606-8 My 5 '15
 Truck makers hold successful convention. *Horseless Age* 35:626-8 My 12 '15
 Truck makers to decide on standard service policy. L. V. Spencer. *Automobile* 32:841-4 My 13 '15
 Trucks and the traffic engineer. *Automobile* 31:1030-1 D 3 '14

Motor truck trailers

- Increasing truck efficiency with trailers. A. R. Miller. *Horseless Age* 35:802-3 Je 16 '15

Motor trucks

- Bingham 1250 delivery car. *Il Horseless Age* 34:326 Ag 26 '14
 Chase water-cooled and worm-driven truck. *Il diag Automobile* 33:118-19 Ji 15 '15
 Chase worm-drive trucks. *Il Horseless Age* 34:440 Mr 31 '15
 Commerce delivery. *Il Automobile* 33:232-3 Ag 12 '15
 Convenient meter installation runabout and cost of its operation. H. A. Hippler. *Il Elec W* 86:415-16 Ag 21 '15
 Detroit package wagon enters field. *Il Automobile* 33:506-7 S 16 '15
 Detroit package wagon in three body types. *Il Horseless Age* 35:330-1 O 1 '15
 Electric system on Reo $\frac{3}{4}$ -ton truck. *Il diags Automobile* 33:378-9 Ag 26 '15
 Four chassis for transit trucks. *Il Automobile* 31:1111 D 17 '14
 Four-ton petrol motor lorry. *Il diag Engineer* 118:507 N 27 '14
 Front drive, bottom dump motor truck. *Il Good Roads* n s 9:241 Je 5 '15
 Hall motor truck. *Il Horseless Age* 35:504-5 Ap 14 '15
 Hall truck enters field. *Il Automobile* 32:768-9 Ap 29 '15
 Indiana three-quarter-ton truck. *Il Horseless Age* 35:605 My 5 '15

- International harvester truck; new model. *Il Horseless Age* 35:271 F 24 '15
 International 1000 lb. truck. *Il Horseless Age* 35:333-3 O 1 '15
 International 1-ton truck. *Il Horseless Age* 35:641 Ap 21 '15
 Jeffrey Quad truck at Victor, Colo. *Eng & Min J* 100:682 O 23 '15
 Kearns one thousand pound truck. *Il Horseless Age* 36:374 O 15 '15
 Kissel adds $\frac{3}{4}$ - to 1-ton truck. *Il Automobile* 33:982 N 25 '15
 Maintaining concrete and brick roads in Illinois. B. H. Piepmeyer. *Il Eng N* 74:310-13 Ag 12 '15
 Motor truck and the road; who should pay the road tax? J. S. Harwhite. *Il Sci Am* 113:66-7 Ji 17 '15
 Motor truck notes and queries. *Sci Am* 113:345 O 16 '15
 1915 truck chassis more flexible. *Automobile* 32:60-1 Ja 14 '15
 Packard worm-drive trucks. *Il Automobile* 32:108-9 Ja 21 '15
 Packard worm-driven trucks; technical details. *Il Horseless Age* 35:101-2 Ja 20 '15
 Performance of gas and electric trucks. W. J. Miller and S. G. Thompson. *Automobile* 33:761-3 O 21 '15
 Remodelling cars for commercial uses. *diag Horseless Age* 34:309-10 D 2 '14
 Republic trucks—simplicity. *diags Automobile* 33:656-7 O 7 '15
 Republic two-ton internal gear drive truck. *Il Horseless Age* 36:46 Ji 14 '15
 Stearns-Knight five-ton truck. *Il Horseless Age* 36:25 Ji 7 '15
 Three-ton petrol lorry. *Il diags Engineer* 119:68-9 Ja 15 '15
 United motor truck models. *Il Automobile* 32:534-5 Mr 25 '15
 Weak spots brought out in German trucks. *Automobile* 33:815 S 30 '15
 White power-hoisting coal body. *Il Automobile* 32:423 Mr 4 '15
 Why local regulations of motor truck traffic are objectionable. *Horseless Age* 35:407-9 Mr 24 '15
 Worm drive on new Locomobile 3 and 4-tonners. *Il Automobile* 31:1264 D 31 '14
See also Automobiles; Electric trucks; Loading and unloading; Motor truck industry; Tires (automobile)

Axles

- 5-ton Sheldon axle with ball bearing worm. *Il diag Automobile* 33:672 S 23 '15

Bodies

- Bodies feature of truck exhibits. *Il Automobile* 32:444-5-4 Mr 11 '15

Cost of operation

- Chicago autotruck service reduces hauling charges. *Eng Rec* 72:299-300 S 4 '15
 Comparisons between horse, gasoline and electric delivery costs; summary of electric vehicle study by Massachusetts Institute. H. F. Thomson. *Elec R & W Elec'n* 67:874-4 N 6 '15
 Cost data for auto trucks. E. N. Bryan. *Eng Rec* 71:211-12 F 13 '15
 Cost of handling material with motor versus horse-drawn equipment. H. F. W. Arnold. *Eng M* 50:28-32 O '15
 Cost of motor-trucking by Chicago water works in 1914. *Eng & Contr* 44:163 S 1 '15
 Economy of heavy motor trucking for Lynn, Mass., water works. D. A. Sutherland. *Eng & Contr* 44:415 N 24 '15
 Extent and cost of use of motor trucks in municipal refuse collection service. S. A. Greeley. *Eng & Contr* 44:236-7 O 13 '15
 Garbage collection studies in Chicago justify continued use of horses. *Eng Rec* 72:52-3 Ji 10 '15
 Motor truck operation and accounting. C. A. Dickens. *Il Munic Eng* 49:46-9, 130-6, sup 25-4 Ag, O-N '15
 Motor trucks and business efficiency. *Il Metal Work* 33:50-2 Ja 1 '15
 Motor vehicles in water-works service at Los Angeles. B. A. Heinly. *Eng N* 73:361-3 My 6 '15

Motor trucks—Cost of operation—Continued

Operating costs of two Cincinnati factories, in comparison with horse-drawn vehicles. *Iron Age* 98:223 J1 23 '15; Same cond. *Ind Eng* 15:104 S '15

Shop equipment and motor trucking costs, meter division of Milwaukee water works. *Eng & Contr* 43:334-5 Ap 14 '15

Underestimating the cost of motor trucking. *E. N. Bryan. Eng & Contr* 43:210 Mr 10 '15

Utilization of the motor truck in highway work. *Il Good Roads* n s 9:171-9 My 1 '15

See also Electric trucks—Cost of operation

Fenders

Dummies play important part in fender tests. *H. A. Allen, C. E. Fitch and H. Borland. Il Eng Rec* 72:571 N 6 '15

Gearing

Another viewpoint; defense of internal gear drive. *V. V. Torbensen. Horseless Age* 35:651 My 12 '15

Calculation of hollow propeller shafts. *diag Horseless Age* 35:369 O 15 '15

Hotchkiss drive for trucks. *A. M. Laycock. diag Automobile* 33:333-4 N 4 '15

Internal gear drive. *C. C. Hancock. Horseless Age* 35:386 Je 30 '15

Internal gear drive. *C. H. Taylor. Horseless Age* 35:566-7 Ap 23 '15

Internal gear drive vs. worm drive. *A. F. Mais. Horseless Age* 35:352; 36:34 Je 23, J1 21 '15

Worm drive for motor trucks. *Horseless Age* 35:441 Mr 31 '15

Worm drive vs. internal gear drive. *C. C. Hancock. Horseless Age* 35:650-1 My 12 '15

Loading

See Loading and unloading

Management

Increasing motor-truck efficiency. *Eng N* 73:1179-80 Je 17 '15

Manufacture

Drill fixtures for motor truck parts. *C. T. Schaefer. diag Horseless Age* 34:318-19 D 2 '14

Machining motor truck sprockets and drums. *A. A. Dowd. diag Horseless Age* 35:436-9 Mr 31 '15

Study of an axle shaft for a motor truck. *J. Younger. Il diag Am Soc M E J* 37:435-9 Ag '15; Same. *Iron Tr R* 56:1311-14 Je 24 '15; Same cond. *Horseless Age* 36:142-4 Ag 1 '15; Abstract. *Iron Age* 98:27 J1 1 '15; Discussion. *Am Soc M E J* 37:439-40 Ag '15

Price lists

Business man's reference table of commercial vehicles. *Sci Am* 112:28+ Ja 2 '15

Price classification of 1915 trucks. *Automobile* 32:65-7 Ja 14 '15

Safety devices

See also Motor trucks—Fenders

Service stations

See Automobile service stations

Specifications

Gasoline motor trucks for 1915: specifications of 377 American commercial vehicle chassis. *Automobile* 32:68-79 Ja 14 '15

Springs

Care of truck springs. *J. G. Utz. Automobile* 31:1122-3 D 17 '14

Tires

See Tires (automobile)

Wheels

English pressed steel truck wheel. *diag Automobile* 32:421 Mr 4 '15

Machining steel motor truck wheels. *A. A. Dowd. diag Horseless Age* 34:383-5 D 16 '14

Need for reducing the number of standard wheel and tire sizes for trucks. *E. W. Kerr. Elec R & W Elec'n* 67:712 O 16 '15

Wheels for commercial vehicles. *T. Clarkson. Il diag Automobile* 32:189-91 Ja 28 '15; Abstract. *Horseless Age* 35:175-6 F 3 '15

See also Motor vehicles—Wheels

Motor trucks, Military

Dennis subsidy lorry. *Il plan (supp) Engineer* 119:576-8, 598-4 Je 11-13 '15

Example of four-wheel drive truck used for war purposes—rules governing the requirements. *Il diag Automobile* 31:120-1 D 17 '14

Makes of automobile trucks used by the United States army. *Automobile* 33:246 Ag 5 '15

Motor searchlights with the British-French forces. *Il Elec R & W Elec'n* 67:239 Ag 7 '15

Motor truck in modern military service. *Il Sci Am* 8 79:280-3 My 1 '15

Motor trucks and modern warfare. *J. Brinker. Il Sci Am* 113:398-9+ N 6 '15

New American military truck; Jeffery machine drives, steers and brakes on four wheels. *J. W. DeCou. Il Eng M* 49:746-9 Ag '15

Saving trucks at the front in France. *W. F. Bradley. Il Automobile* 32:51-5+ Ja 14 '15

Sham warfare motor equipment test. *J. H. Schipper. Il Automobile* 33:422-5 S 2 '15

Type of truck for military use. *J. W. DeCou. Horseless Age* 35:300 Je 16 '15

U. S. army needs motor transports. *J. H. Schipper. Il Automobile* 33:231-3 Ag 5 '15

War trucks arrive in France. *W. F. Bradley. Il Automobile* 33:226-31 F 4 '15

Motor trucks, Municipal

Baltimore municipal White truck has wireless equipment. *Il Automobile* 31:1023 D 3 '14

See also Electric trucks, Municipal; Street cleaning apparatus, Motor

Motor trucks in construction work

Cost of motor-truck hauling depends on conditions. *W. Collins, Jr. Eng N* 74:653 S 30 '15

Demonstration of gravel road construction using motor truck and road grader. *R. L. Morrison. Il Eng & Contr* 44:205 S 15 '15

Excavating aggregates with drag line and hauling by motor truck on Indiana concrete road work. *S. B. Bates. Il plans Eng & Contr* 44:231-3 S 22 '15

Handling 400 tons of stone per day with auto trucks. *Eng Rec* 70:621-2 D 5 '14

Hauling gravel with motor truck and trailers; a service test in concrete road construction. *Il Eng & Contr* 42:535-6 D 9 '14

Hauling heavy water pipes. *El. C. Miles. Il Munic J* 33:97-9 Ja 26 '15

Hauling material on the North side reservoir, Pittsburgh. *Eng N* 73:173-4 Ja 28 '15

More use of motor trucks for hauling structural steel. *D. P. N. Little. Il diag Eng N* 74:554-5 S 16 '15

Motor truck and the contractor. *B. A. Gramm. Munic Eng* 49:180-1 N '15

Motor truck in road building. *Il Munic Eng* 48:205-8 Mr '15

Motor truck operation and accounting. *Il Munic Eng* 49:46-9 Ag '15

Motor trucks for heavy structural steel. *W. Collins, Jr. Il Eng N* 74:174-6 J1 22 '15

Pipe hauling by motor truck. *W. L. Vonnard. Il Munic J* 33:259 F 25 '15

Utilization of the motor truck in highway work. *Il Good Roads* n s 9:171-9 My 1 '15

Motor trucks in freight handling

Methods of handling L. C. 1.1. outbound freight. *El. H. Lee. Ry Age* 57:1182-4 D 25 '14; Conclusions. *Eng Rec* 71:52 Ja 9 '15

Trucking L. C. 1.1. freight. *Ry R* 56:352-3 Mr 13 '15

Motor trucks in ore haulage

Motor-truck ore hauling in California. *Eng & Min J* 100:790 N 13 '15

Motor trucking iron ore; abstract. *J. Younger. Il Eng & Min J* 99:242 Ja 30 '15

Motor vehicles

Motorized police department. *K. C. Cardwell. Il Munic J* 33:316-17 Mr 11 '15

Practicability of applying same spring elements to motor vehicles of all classes. *diag Automobile* 32:354-6+ My 13 '15

See also Ambulances; Automobiles; Cyclecars; Electric vehicles; Fire apparatus; Motor; Motor buses; Motor cycles; Motor trucks; Tractors; Unicycles

Wheels

Heavy motor vehicles—wheels and weights. *W. W. Beaumont. Engineer* 119:523 My 28 '15

Motorcycles. See Motor cycles

Motors

See also Aeroplane motors; Dynamos; Electric motors; Engines; Gas and oil engines; Machinery; Steam engines; Turbines; Water wheels; Windmills

Mountain railroads

Furka railway; a new Alpine railway from the Rhône to the Rhine. A. Gradenwitz. *Il Sci Am S 79:344-5* My 29 '15
Great railway electrification project. *Il map Sci Am S 79:56-8* Ja 23 '15
Hamilton electric incline railway. *Il Elec Ry J 46:115-16* JI 17 '15; Same. *Eng N 74:49-51* JI 8 '15; Same. *Ry R 57:213-14* Ag 14 '15
Hamilton incline railway. *Il Munic J 39:41-2* JI 8 '15
Looping the loop in the Alps. J. F. Springer. *Il Sci Am 111:504-5* D 19 '14
Mountain railway electrification. F. Castiglioni. *Elec Ry J 46:365-60* O 23 '15

See also Cable railroads

Mountain roads

Alpine roadbuilding in the Hudson river valley. *Il Eng N 74:1025-6* N 25 '15
Build scenic highway up Pike's Peak. *Il Eng Rec 73:504-6* O 23 '15
Connecting roads to mountain parks of Denver, Colorado. O. B. Thum. *Il Munic Eng 49:15-17* JI '15
Location and construction of highways in mountain country. F. W. Harris. *Il diags Eng N 72:1199-1201* D 17 '14; Excerpt (Don'ts in mountain road location). *Eng & Min J 99:237-8* Ja 30 '15; Excerpt (Bagley scraper for road making). *Eng & Min J 99:325* F 13 '15
Making a road up the Palisades. *Il plan Eng N 74:998-1000* N 18 '15
Methods and cost of constructing a mountain road system in Wise county, Virginia. W. F. Cocke. *Il map Eng & Contr 43:341-4* Ap 14 '15
New California road overcomes mountain barrier. N. D. Darlington. *Il Eng Rec 72:322-3* S 11 '15
Road construction in Denver's mountain parks. O. B. Thum. *Il plan Munic J 38:417-20* Ap 1 '15
Storm King highway, New York. H. E. Breed. *Il map Eng N 74:721-4* O 14 '15

Mountaineering

Switzerland in America. A. C. Laut. *Il Am For 20:839-57* D '14

Mountains

Switzerland in America. A. C. Laut. *Il Am For 20:839-57* D '14

See also Mitchell, Mt.

Moving. See Building moving

Moving picture laboratories

Air conditioning in a moving picture laboratory. *Il plans Heat & Ven 12:20-6* F '15

Moving picture theaters

British India; cinematograph theaters. U S Sp Cons Rep 72:167-8 '15

Modern moving picture theatre: Globe theatre, Los Angeles. *Il plans Bldg Age 37:19-26* Ja '15

Moving picture theater of to-day. *Il plans Bldg Age 37:19-26* N '15

Planning the moving picture theatre. J. J. Klaber. *Il plans Arch Rec 38:540-54* N '15

Plumbing installation in movie theater. *Il plan Metal Work 84:99-100* JI 23 '15

Ventilation

Chicago ventilation commission first report. *Il Metal Work 83:632-5+* Ap 30 '15

Proposed standards for ventilation legislation for motion picture show places; with discussion. *Am Soc Heat & V E 19:166-78* '13

Ventilating southern motion picture theater. *Il plan Metal Work 83:869-70+* Je 18 '15

Moving pictures

Arc-light controller for motion picture projection apparatus. *Il Sci Am 112:272* Mr 20 '15

Artificial lighting of moving picture studios. W. A. D. Evans. *Il Illum Engr 8:284-8* Je '15

Compensarc for motion-picture projectors. C. Walford. *diag Elec R & V Elec'n 67:230-1* Ag 7 '15

Electric lighting for motion-picture studios. L. G. H. Smith. *Elec W 65:1040-2* Ap 24 '15

Electric sunshine in movie production in California. *Il Elec W 66:136* JI 17 '15

How motion pictures are made. *Mach 21:445* F '15

Intermittent mechanism for motion picture projectors. W. B. Morton. *Il diags Sci Am 112:614* Je 19 '15

Invention and development of photography; from the daguerreotype to the moving picture. *Sci Am 112:564+* Je 5 '15

Kinematographics. *Sci Am S 80:251* O 16 '15

Methods by which the European war has been filmed. E. A. Dench. *Sci Am 112:377+* Mr 20 '15

Motion picture magic; playing tricks on time. C. H. Claudy. *Il Sci Am 112:454-5* My 15 '15

Motion picture magic; what we see and what we think we see. C. H. Claudy. *Il Sci Am S 80:184-5* S 18 '15

Motor-driven motion-picture projector. *Il Elec R & V Elec'n 67:952* N 20 '15

Non-winding motion-picture reel. *Il Elec R & V Elec'n 68:223* Ja 30 '15

Notes on the use of light in cinematograph work. *Illum Engr 8:310-14* JI '15

Producing mechanical moving pictures. *Mach 21:455-6* F '15

Romance of motion pictures. C. F. Jenkins. *Sci Am S 79:323* My 23 '15

Stop motion for moving picture machines. W. B. Morton. *diags Sci Am S 79:396-7* Je 19 '15

Strangest city in the world; a town given over to the moving pictures. *Il Sci Am 112:365* Ap 17 '15

Throw-over arrangement for operating two motion-picture machines. *diag Elec R & V Elec'n 67:341* Ag 21 '15

See also Moving picture laboratories; Moving picture theaters

Moving pictures, Colored

Difficulties of color cinematography. J. Fr Inst 180:633 N '15

Motion pictures in colors. E. Coustet. *diags Sci Am S 78:386-7* D 19 '14

Moving pictures, Municipal

Advertising a city by moving pictures. A. Marple. *Munic Eng 48:293* My '15

Moving pictures in education

Films may help in the selection of an occupation. *Sci Am S 80:333* N 20 '15

Government uses motion pictures. C. J. Blanchard. *Il Sci Am S 80:120-2* Ag 21 '15

Motion films of molecular movements. *Il Elec W 66:708* S 25 '15

Moving picture exchange for A. E. R. A. F. J. Warnock. *Elec Ry J 46:820-1* O 16 '15

Safety first for you and me. H. L. Brownell. *Elec Ry J 46:749* Ap 17 '15

Uncle Sam in the movies. C. J. Blanchard. *Il Am For 21:532-40* Ap '15

Moving pictures in industry

Circulating motion-picture films to stimulate electrical business. *Elec W 65:173* Ja 16 '15

Motion picture in industry utilized by manufacturers of machinery in selling their products. A. L. Morris. *Il Iron Tr R 56:517-18* Mr 11 '15

Moving pictures in science

Motion pictures of electrolysis. *Il Sci Am S 80:340-1* N 27 '15

Röntgen motion pictures; the Dessauer process. *Il Sci Am 112:312* Ap 3 '15

Moving pictures in war

Military air scouting by motion pictures. E. A. Dench. *Sci Am 112:156* F 13 '15

Moving stairways

Extension of the Bakerloo tube. *Il plan Engineer 119:92* Ja 22 '15

Mufflers, Automobile. See Automobile mufflers

Muir, John, 1838-1914

Appreciation. G. B. Sudworth. *por Am For 21:184-5* Mr '15

John Muir in college. C. E. Vroman. *Sci Am S 80:103* Ag 14 '15

- Mules**
 Mine mule investigations. G. E. Wentworth. Colliery 35:261-2 D '14
- Multiplication**
 Multiplying large numbers on adding machines. R. C. Hardman. Eng N 74:703 O 7 '15
- Mundy, Joseph S., 1847-1915**
 Sketch. por Eng N 73:1141 Je 10 '15
- Municipal accounting**
 Classifications of municipal expenditures in budgets and accounts and the purposes which they subserve. L. G. Powers. J Account 19:118-36 F '15
 Development of a unit cost system. N. Cunliff. Il Assn Eng Soc J 53:74-85 Ag '14; Same. Eng & Contr 42:374-6 O 21 '14; Discussion. Assn Eng Soc J 53:85-101, 165-70 Ag-S '14
 Inaccurate municipal accounting and cost keeping. Eng & Contr 43:438 My 19 '15
 Municipal accounting and its relationship to government. H. W. Carroll. J Account 20:260-70 O '15
See also Municipal finance
- Bibliography**
 List of references on municipal accounting. H. H. B. Meyer. Special Libraries 6:63-77 Ap '15
- Municipal advertising**
 Advertising a city by moving pictures. A. Marple. Munic Eng 48:283 My '15
- Municipal art.** *See* City planning; Municipal buildings
- Municipal buildings**
 Annex to the city hall, Boston, Mass. Il plans Arch & Bldg 47:265-7 J1 '15
 Bridges and buildings in cities, 1915; tabulation. Munic Eng 48:287-8 Ap '15
 City hall, Burlingame, California; views and plans. Brickb 23:pl 182-3 D '14
 City of Jacksonville engineering building. W. P. Darwin. Il plans Eng N 72:1220 D 17 '14
 Municipal public halls; court decisions in several states. J. Simpson. Munic J 39:617-19 O 21 '15
 Project for large municipal convention hall in Chicago. Il map Ry R 56:100-1 Ja 16 '15
 San Diego's municipal stadium. F. A. Rhodes. Il plan Eng N 74:577-80 S 23 '15
See also Public comfort stations
- Municipal centers.** *See* City planning
- Municipal charters**
 Proposed new charter for Newark, N. J. Munic Eng 49:140 O '15
- Municipal colleges**
 Training for the municipal service. C. L. King. Sci Am S 79:118-19 F 20 '15; Same cond. with discussion. Am Soc M E J 37:98-101 F '15
- Municipal corporations**
 Municipal powers re. lighting plants. J. Simpson. Munic J 38:880-3 Je 24 '15
 Municipal trading; legal powers of cities to engage in plumbing, brick manufacture, quarrying and dealing in fuel, real estate and liquor. J. Simpson. Munic J 38:732-4 My 27 '15; Same abr. Munic Eng 49:24-5 J1 '15
- Municipal electric shops.** *See* Electric shops, Municipal
- Municipal electricians, International association of.** *See* International association of municipal electricians
- Municipal employees**
 Training for the municipal service. C. L. King. Sci Am S 79:118-19 F 20 '15; Same cond. with discussion. Am Soc M E J 37:98-101 F '15
- Municipal engineering**
 Application of geology to the problems of the municipal engineer. H. Lapworth. Eng & Contr 42:179-81 Ag 19 '14
 Broader applications of chemistry by the municipality. H. W. Mahr. J Ind & Eng Chem 6:1080-2 D '14
 City engineer's records in Frankfort, Ind. R. H. Boynton. Munic Eng 49:78-9 Ag '15; Same. Eng & Contr 44:165-6 S 1 '15
- Employment of experts by cities.** M. L. Cooke. Eng & Contr 42:398 O 28 '14
- Factors in municipal engineering.** M. L. Cooke. Sci Am S 80:238-40 O 9 '15; Abstracts. Am Soc M E J 37:81-7 F '15; Eng Rec 70:644-5 D 12 '14; Eng & Contr 42:575-8 D 23 '14; Discussion. Am Soc M E J 37:85-7 F '15
- Municipal engineering works of San Francisco.** A. J. Cleary. Il plans maps diag Eng N 73:289-325 F 18 '15
- Principles governing the organization of city engineering departments.** E. Willis. Eng & Contr 42:253-5 S 9 '14
- Rules for subordinate engineers on municipal work.** M. M. O'Shaughnessy. Eng N 73:446 Mr 4 '15
- Sidewalk work in Cincinnati; securing the construction of sidewalks, assessing for and keeping records of same.** D. L. Barr. Munic J 38:763-6 Je 3 '15
- Standardizing engineering positions and salaries in New York city.** Eng N 73:64-5 Ja 14 '15
See also Municipal improvement; Parks; Pavements; Public works; Refuse and refuse disposal; Refuse collection; Sanitary engineering; Sewage disposal; Sewerage; Street cleaning; Streets; Water purification; Water supply engineering
- Municipal exhibits**
 Municipal exhibit at Dayton, Ohio. Il Munic J 39:690-2 N 4 '15
- Municipal farms**
 Water-works farming and forestry by Los Angeles. B. A. Heinly. Eng N 73:745 Ap 15 '15
- Municipal finance**
 Annual budget. W. T. Childs. Munic J 39:545-7 O 7 '15
 Financing public improvements on the pay-as-you-go plan. C. B. Buerger. Eng N 72:1179-80 D 10 '14
 How apportion costs of municipal improvements? N. P. Lewis. Eng Rec 72:660-7 N 27 '15
 Making water bills a lien on real property. Eng & Contr 42:425-6 N 4 '14
 Municipal expenditures. Munic J 38:11 Ja 7 '15
 Paying contractors in bonds. A. F. Bell. Munic J 39:809-10 N 25 '15
 Payment for special street lighting. Elec R & W Elec'n 65:1129-30 D 12 '14
 Rational budget making. Munic J 39:695-7 N 4 '15
See also Municipal accounting; Municipal government
- Municipal forests.** *See* Forests, Municipal
- Municipal franchises**
 Features of nineteen typical heating franchises. Il Heat & Ven 12:43-5 J1 '15
 Modern franchise for a public service corporation. C. C. Brown. Munic Eng 48:89-98 F '15
 Municipal co-operation in public utility management. P. J. Kealy. Am Inst E E Pro 34:2263-74 O '15; Same cond. Elec Ry J 46:861-3 O 23 '15
 Public service corporation and the municipality; with discussion. J. Logan. Boston Soc C E J 2:223-59 Je '15
See also Electric service companies—Franchises; Street railroads—Franchises
- Municipal garages.** *See* Garages, Municipal
- Municipal gas plants.** *See* Gas manufacture and works, Municipal
- Municipal government**
 Aspects of city-planning administration in Europe. F. B. Williams. Am Inst Arch J 8:260-4 Je '15
 Municipal life and government in Germany. by W. H. Dawson. Review. Munic Eng 48:142-3 F '15
 Organization, character of personnel, scope of work, and methods of operation and control of a large municipal highway department. W. H. Connell. Il map J Fr Inst 179:489-69 Ap '15

Municipal government—Continued

Principles governing the organization of city engineering departments. E: Willis. Eng & Contr 42:253-5 S 9 '14

See also Fire departments; Municipal corporations; Municipal finance; Municipal law; Municipal officers; Municipal ownership; Municipal supplies; Police

City manager plan

City managers in the West. W. F. Kerr. Munic Eng 48:199-201 Mr '15

Commission and city manager forms of government. H. H. Rumble, R. W. Peatross and J. E. Burke. Munic Eng 49:52-6 Ag '15

Commission government and an engineer manager for Lakeland, Florida. H. D. Mendenhall. Munic Eng 48:249-51 Ap '15

Commission-manager form of government. D. A. Reed. Eng & Contr 43:82 F 3 '15

Commission-manager form of government and its relation to the engineering profession. H: M. Waite. Boston Soc C E J 2:1-14 Ja '15; Abstract. Eng M 48:894-6 Mr '15; Discussion. Boston Soc C E J 2:14-21 Ja '15

Commission-manager government. Munic J 38:318 Mr 11 '15

Dayton's progress under commission-manager. W: S. Crandall. Munic Eng 49:67 Ag '15

Discussion of the commission-manager form of government. J: B. Blood. Boston Soc C E J 2:131-3 Mr '15

Early difficulties encountered under the commission-manager form of municipal government. Eng & Contr 42:551 D 16 '14

Experience at Inglewood, Calif., with the city manager form of government. P. E. Kressley. Eng & Contr 42:465-6 N 11 '14

First convention of city managers. Eng N 72:1189-90 D 10 '14

Hour with a city manager. Eng Rec 71:169 F 6 '15

Powers and duties of the city manager defined. H. M. Waite. Eng Rec 72:664 N 27 '15

Publicity necessary for city manager success. W. Miller. Eng Rec 72:666 N 27 '15

Results obtained at Abilene, Kan., in 16 months under commission-manager government. K. Riddle. Eng & Contr 42:503-4 N 25 '14

Training of the city manager. H. M. Waite. Munic Eng 48:44 Ja '15

Year of commission-manager government at Lakeland, Fla. D. F. McLeod. Eng N 72:1118 D 3 '14

Year of the commission-manager plan at Titusville, Penn. L. O. Bradley. Eng N 72:1155 D 10 '14

Commission plan

Commission and city-manager cities. Munic J 38:686 My 20 '15

Commission and city manager forms of government. H. H. Rumble, R. W. Peatross and J. E. Burke. Munic Eng 49:52-6 Ag '15

Municipal halls. See Municipal buildings

Municipal improvement

Architect's part in the world's work. F: L. Ackerman. Arch Rec 37:149-53 F '15

British India; improvement trusts. II U S Sp Cons Rep 72:61-6 '15

How apportion costs of municipal improvements? N. P. Lewis. Eng Rec 72:666-7 N 27 '15

Municipal improvements for 1915; tabulation. Munic Eng 48:252-71 Ap '15

Pertinent paragraphs from a real report. M. L. Cooke. II Eng M 50:445-9 D '15

See also Baths, Public; Building laws; City planning; Cleaning of cities; Dust prevention; Electric wire and wiring; Fire protection; Garden cities; Harbors; Housing problem; Landscape gardening; Lighting; Parks; Pavements; Public comfort stations; Refuse and refuse disposal; Refuse collection; Smoke prevention; Streets; Trees

Municipal improvements, American society of. See American society of municipal improvements

Municipal laboratories

Portland's municipal testing laboratory. H. White. II Munic J 39:808-9 N 25 '15

Municipal law

Contracts by municipal officers. J: Simpson.

Munic J 39:807-8 N 25 '15

Municipal public halls; court decisions in several states. J: Simpson. Munic J 39:617-19 O 21 '15

Use of patented articles: court decisions in the several states as to conditions under which cities may contract for patented pavements and other articles. J. Simpson. Munic J 38:13-15 Ja 7 '15

See also Building laws; Fire protection—Laws; Plumbing laws and regulations; Public health laws; Roller skating—Regulation; Sewerage—Laws; Street openings; Street traffic; Trees; Waterworks—Law

Municipal lighting plants. See Electric plants, Municipal

Municipal markets. See Markets, Municipal

Municipal motor trucks. See Motor trucks, Municipal

Municipal officers

Contracts by municipal officers. J: Simpson. Munic J 39:807-8 N 25 '15

Experience of an engineer in public office. M. L. Cooke. Am Soc M E J 37:708-9 D '15

Training for the municipal service. C. L. King. Sci Am S 79:118-19 F 20 '15; Same cond. with discussion. Am Soc M E J 37:98-101 F '15

Municipal ownership

Detroit municipal ownership proposal. Elec Ry J 45:431 F 27 '15

Disadvantages. B. J. Arnold. Elec Ry J 46:911 O 30 '15

Municipal fertilizer plant at Los Angeles. B. A. Heiny. Eng N 73:1063-4 Je 3 '15

Municipal ownership and operation of waterworks: case for state control. M. N. Baker. Eng N 72:1115 D 3 '14

Municipal ownership growth. Munic Eng 49:79 Ag '15

Municipal trading; legal powers of cities to engage in plumbing, brick manufacture, quarrying and dealing in fuel, real estate and liquor. J. Simpson. Munic J 38:732-4 My 27 '15; Same abr. Munic Eng 49:24-5 Jl '15

Philadelphia conference: criticism. H. G. D. Nutting. Elec R & W Elec'n 65:1145 D 12 '14

State control of city-owned utilities much needed. Eng N 74:658-9 S 30 '15

State regulation of municipally owned plants. C. M. Larson. Am Water Works Assn J 2:515-37 S '15

See also Asphalt plants, Municipal; Cement plants, Municipal; Electric plants, Municipal; Gas manufacture and works, Municipal; Government ownership; Government regulation of industry; Hydroelectric plants, Municipal; Markets, Municipal; Moving pictures, Municipal; Municipal government; Public service corporations—Regulation; Repair shops, Municipal; Street railroads, Municipal

Municipal plants. See Asphalt plants, Municipal; Electric plants, Municipal; Hydroelectric plants, Municipal

Municipal records

Portland, Ore., bureau of photography. H. M. White. II Munic J 39:577-8 O 14 '15

Record system in a smoke inspector's office. M. A. Rooney. Power 43:543-4 O 19 '15

Signal box records. P. I. Patton. Munic J 39:397-8 S 9 '15

Municipal repair shops. See Repair shops, Municipal

Municipal sanatoriums. See Sanatoriums, Municipal

Municipal supplies

Broader applications of chemistry by the municipality. H. W. Mahr. J Ind & Eng Chem 6:1030-2 D '14

Portland's municipal testing laboratory. H. White. II Munic J 39:808-9 N 25 '15

Purchasing and distributing supplies in Cleveland. A. R. Callow. II Munic J 39:391-4 S 9 '15

Municipal trading. See Municipal ownership

Munitions of war. See War materials

Mural painting and decoration

Mural painting in America, by E. H. Blashfield. Review by R. F. Bach. Arch Rec 37: 93-5 Ja '15

Villa Madama: text and measured drawings by Howard W. Germann. Il Arch Rec 37:26-47 Ja '15

See also Stucco

Muscantine, Iowa

City founded on sawdust; how part of Muscantine came to be built on such a foundation. diag map Eng Rec 71:496-7 Ap 17 '15

Museums

Making museums useful. H. I. Smith. diags Sci Am S 79:348-9 My 29 '15

See also Anthropology—Exhibitions; also Field museum of natural history

Lighting

Glare in museum galleries; the psychological factor in the lighting problem. B. I. Gilman. diags Arch Rec 38:262-80, 362-78 Ag-S '15

Museums, Art. See Art galleries

Museums, Children's. See Children's museums

Mushrooms

Mushroom Lorelei and its dangers. R. M. F. Berry. Sci Am S 80:263 O 23 '15

Raising mushrooms in a coal mine. S. C. Reynolds. Il Colliery 36:103 S '15

Music

Developments of the audion lamp—music from light. Elec R & W Elec'n 67:908-9 N 13 '15

See also Color music; Musical instruments

Musical instruments

Musical wogds. Sci Am S 78:355 D 5 '14

Mechanical devices

Device for the simultaneous playing of violin and piano. Il Sci Am 113:471 N 27 '15

Musical pitch

Musical pitch to the eleventh decimal. J. B. Taylor. Sci Am 112:389 Mr 37 '15

Optophone and musical pitch. E. H. Hawley. Sci Am 111:523 D 26 '14

Musk

Loss of weight of musk in a current of dry air. C. B. Bazzoni. diag J Fr Inst 180:463-9 O '15

Mussels

Our neglected aquatic foods. Sci Am 112:332 Ap 3 '15

Mustard seed

Production, botanical composition and volatile oil strength of American wild mustard seed. A. L. Winton and J. H. Bornmann. J Ind & Eng Chem 7:684-6 Ag '15

Myrica rubra

Coloring principle of myrica rubra—its azo-, sulfide- and nitro-dyestuffs. S. Satow. J Ind & Eng Chem 7:113-15 F '15

N**Nails**

Electromagnetic nail packing machine. Il Iron Age 95:900-1 Ap 22 '15

Holding power of nails; abstract. Am Soc M E J 37:719-20 D '15

Internally fired nail bluing furnace. Il Iron Age 95:1295 Je 10 '15

New machine for making wire nails. Il diag Iron Age 95:792-3 Ap 8 '15

Nameplates

Making sectional molds for die-cast nameplates. E. K. Hammond. Il Mach 21:554-7 Mr '15

Names

Orthography in geography and biography. F. H. Teall. Inland Ptr 54:485-7 Ja '15

Names, Geographical

Problem in war names; Kiaochow. Sci Am 111:486 D 12 '14

Naphthalene

Coal gas residuals—Feld process. F. H. Wagner. Am Gas Inst Fro 9:pt 1, 340-61 '14;

Same cond. Am Gas Light J 101:306-7 N 16 '14; Same cond. Met & Chem Eng 12:698-9 N '14; Same cond. Sci Am S 80:317-18 N 13 '15; Discussion. Am Gas Inst Fro 9:pt 1, 361-7 '14

Combustion calorimetry and the heats of combustion of cane sugar, benzoic acid, and naphthalene. H. C. Dickinson. bibliog U S Bur Stand Bul 11:189-257 Mr 1 '15

Narcotics

How narcotics affect plants. Sci Am S 79: 267 Ap 24 '15

Nashville, Tennessee**Water supply**

Repairing and waterproofing the Nashville water-works reservoir. W. W. Southgate. Il diags Eng N 78:849-52 My 6 '15

Nashville, Chattanooga & St. Louis railway Chattanooga creek bridge. C. H. Johnson. Il plan Ry Age 59:343-5 Ag 20 '15

Natalite

Natalite a gasoline substitute. Automobile 32: 1094 Je 17 '15

National academy of sciences

National academy of sciences and the national government. Sci Am 113:176 Ag 28 '15

Needs of the National academy of sciences. Sci Am 113:136 Ag 14 '15

Why we need a National academy of sciences. Sci Am 113:154 Ag 21 '15

National association of builders exchanges

Convention, Columbus, O., Jan. 20-28. Bldg Age 37:33-7 Mr '15

National association of corporation schools

Annual convention at Worcester, Mass. Iron Age 95:1375 Je 17 '15

National association of cotton manufacturers

Annual meeting in Boston. Textile World 49: 198-232+ My '15

99th meeting; papers. Il Textile World 49:607-39 S '15

National association of electrical inspectors

Convention, New York city, March 23. Elec W 65:824 Mr 27 '15

Convention, New York city, March 23-25. Elec R & W Elec'n 66:601 Mr 27 '15

National association of hosiery and underwear manufacturers

11th annual meeting, Philadelphia, May 3-8. Textile World 49:233-44+ My '15

National association of manufacturers

20th annual convention, New York, May 25-26. Iron Age 95:1226-7 Je 3 '15

National association of manufacturers of electrical supplies

Electrical manufacturers make progress in organization plans. Elec R & W Elec'n 66: 232 F 6 '15

National association of master plumbers

Annual convention, Chicago, July 13-15. Heat & Ven 12:46-7 Ag '15

33d annual convention, Chicago, July 13-15. Metal Work 84:121-9 Jl 23 '15

33d annual convention; with account of Des Moines and Salt Lake City indictments, list of delegates, etc. Dom Eng 72:59-79 Jl 17 '15

National association of master steam and hot water fitters

Annual convention, Milwaukee, June 21-24. Metal Work 84:24-8 Jl 2 '15

27th annual convention, Milwaukee, June 21-24. Dom Eng 71:372-5 Je 26 '15

27th annual convention, Milwaukee, June 21-24, 1915. Heat & Ven 12:35-40 Jl '15

National association of railway commissioners

Annual meeting, San Francisco, Oct. 12-16. Ry Age 59:789 O 22 '15

27th annual convention, San Francisco, Oct. 12-16. Elec W 66:961 O 30 '15

National association of scale experts

11th semi-annual meeting at Chicago, Ill. Ry Age 58:269-70 F 12 '15

National association of sheet metal contractors

11th annual convention, Denver, June 7-11. Metal Work 83:890-8 Je 18 '15

Trade development committee meeting, Chicago, Nov. 12. Metal Work 84:680-1 N 19 '15

- National association of stationary engineers**
33d annual convention, Columbus, O., Sept. 13-18. Power 42:462-3 S 28 '15
- National association of stove manufacturers**
Convention, New York city, May 12-13. Metal Work 83:746 My 21 '15
- National association of wool growers**
51st annual meeting at Salt Lake City, Nov. 12-14, 1914. Textile World 48:283-6 D '14
- National association of woollen and worsted overseers**
List of members present at 32d annual meeting. Textile World 48:362-3 D '14
33d semi annual meeting, Rocky Point, R. I., May 15. Textile World 49:391-2 Je '15
- National automobile chamber of commerce**
Chamber of commerce to defend Kardo patents suit. Horseless Age 34:329-30 D 9 '14
- National cash register company**
Modern plating practice: a piecework system as used by the National cash register company. W. Fraine. II Metal Ind n s 18:1-4 Ja '15
Research work at the National cash register company. H. G. Dorsey. II Sibley J 29:115-21 Ja '15
- National characteristics**
Random reflections. Sci Am 112:326+ Ap 3 '15
- National civic federation**
15th annual meeting. Elec R & W Elec'n 65:1142 D 12 '14
Governmental versus private enterprise discussed. Elec W 64:1140-1 D 12 '14
- National commercial gas association**
Minneapolis convention. Am Gas Light J 101:360-1, 377 D 7-14 '14
- National conference on city planning**
Seventh conference in Detroit, June 7-9. Eng N 73:1190 Je 17 '15
- National district heating association**
7th annual convention, Chicago, June 1-3. Dom Eng 71:285-7 Je 5 '15; Elec R & W Elec'n 66:1117-20 Je 12 '15; Elec W 65:1576-7 Je 12 '15; Heat & Ven 12:37-45 Je '15; Metal Work 83:853-5 Je 11 '15; Power 41:861-3 Je 23 '15
- National electric light association**
Commercial section plans. Elec W 66:446-7 Ag 28 '15
Constructive work before the N. E. L. A. H. E. Scott. Elec W 65:5-6 Ja 2 '15
Convention, San Francisco, June 8-11. Elec Ry J 45:1106-9 Je 12 '15
Future work of N. E. L. A. E. W. Lloyd. Elec W 66:155-6 JI 17 '15
Meetings of N. E. L. A. executive committee. Elec W 65:186-7, 695-6; 66:906 Ja 16, Mr 18, O 23 '15
N. E. L. A. rules to harmonize service requirements for motors. Elec W 66:93 JI 10 '15
38th annual convention, San Francisco, June 7-11; abstracts of papers and reports. Power 41:858-60 Je 22 '15
38th convention; abstracts of papers and reports. Elec R & W Elec'n 66:1107-13 Je 12 '15
38th convention, San Francisco: abstracts of papers and discussions. Elec W 65:1502-34 Je 12 '15
38th convention, San Francisco, June 8-11. Elec R & W Elec'n 66:1095-1104 Je 12 '15
- National electric light association, Iowa section**
15th annual convention, Keokuk, April 20-22. Elec R & W Elec'n 66:816-20 My 1 '15
- National electric light association, Michigan section**
4th annual convention, June 26-30. Elec R & W Elec'n 67:27-30 JI 3 '15
4th annual convention, June 26-30. Elec W 66:108-9 JI 10 '15
- National electric light association, New England section**
New England question box convention. Elec R & W Elec'n 66:537-40, 698-600 Mr 20-27 '15
New England section 7th annual convention. Elec R & W Elec'n 67:577-83 S 25 '15
New England section 7th annual convention, Kineo, Me., Sept. 14-17. Elec W 66:680-1 S 25 '15
- National electric light association, Southeastern section**
Southeastern section annual convention, Asheville, N. C., Sept. 22-24. Elec W 66:738-7 O 2 '15
- National electrical code**
Changes in National electrical code. Elec W 65:878-80 Ap 3 '15
National electrical code amended at conference in New York city. Elec R & W Elec'n 66:624-8 Ap 3 '15
National electrical code wiring rules compared with the German and English rules. Elec R & W Elec'n 65:1081-9 D 5 '14
Proposed changes in the code to be considered by electrical committee. Elec R & W Elec'n 66:337-40 F 20 '15
Questions and answers on the National electrical code. See weekly numbers of Electrical review and western electrician
Revising the code. Elec R & W Elec'n 66:613-14 Ap 3 '15
See also Electric inspection
- National electrical contractors' association**
Convention at San Francisco. Elec W 66:215-16 JI 24 '15
16th annual convention, San Francisco, July 21-24. Elec R & W Elec'n 67:202-4 JI 31 '15
- National electrical safety code**
Conference on safety code. Elec W 66:956-7 O 30 '15
Criticism. C. L. S. Tingley. Elec Ry J 45:845 My 1 '15
Defense of the Safety code. E. B. Rosa. Elec Ry J 45:939-41 My 15 '15
Electrical safety rules issued. S. W. Stratton. Elec W 65:1102-5 My 1 '15
National electrical safety rules. E. B. Rosa. Elec W 65:915-17 Ap 10 '15; Same. Elec Ry J 45:750-1 Ap 17 '15
Opinions. C. L. Cadle; J. H. Hanna. Elec Ry J 45:1036 My 28 '15
Proposed National electrical safety code. U S Bur Stand Circ 54:1-137 '15
Proposed rules formulated by the Bureau of standards. E. B. Rosa. Elec W 65:845-7 Ap 3 '15
Safety rules to be observed in the operation and maintenance of electrical equipment and lines. U S Bur Stand Circ 49:1-50 '14; Abstract. Elec R & W Elec'n 65:418-19 Ag 29 '14; Abstract. J Fr Inst 178:350-4 S '14; Abstract. Power 40:806-7 D 8 '14
Wisconsin considers safety rules. Elec W 66:959-60 O 30 '15
- National exposition of chemical industries**
First exposition at the Grand Central palace, New York city, Sept. 20-25. Textile World 50:87-9 O 15 '15
First exposition at the new Grand Central palace, New York city, Sept. 20-25. J Ind & Eng Chem 7:896-8 O '15
First National exposition at the Grand Central Palace, New York, Sept. 20. Eng & Min J 100:441 S 11 '15
Program and list of exhibitors. Met & Chem Eng 13:574 S 1 '15
Summary of exhibits and lists of papers read at first exposition. II Met & Chem Eng 13:690-700 O 1 '15
Technical society meetings and lectures. Met & Chem Eng 13:629 S 15 '15
- National fire protection association**
19th annual convention, New York, May 11-13. Elec W 65:1264-5 My 15 '15
19th annual convention, New York, May 11-13. Eng Rec 71:667 My 22 '15
- National foreign trade convention, 2d**
Export movement set forward at St. Louis. Iron Age 95:246-51+ Ja 28 '15
Meeting at St. Louis, Jan. 21 and 22, 1915. Elec W 65:253-4 Ja 23 '15
- National forests.** See Forest reserves
- National founders' association**
19th annual convention, New York, Nov. 17-18. Iron Age 96:1242-7 N 25 '15
19th annual convention, New York, Nov. 17-18. Iron Tr R 57:1000-1, 1043-6 N 18-25 '15
- National garage association**
Growth of the National garage association. Horseless Age 35:634-5 My 12 '15

- National guard (United States).** See United States—Militia
- National hardware association**
Manufacturers and distributors of tin plate and sheet metal discuss business conditions. Metal Work 83:784-5 My 28 '15
- National independent telephone association**
18th annual convention, Chicago, February 3 to 5. Elec R & W Elec'n 66:805-8 F 13 '15
- National industrial traffic league**
Annual meeting, Chicago, Nov. 17-18. Ry Age 59:1004 N 26 '15
- National machine tool builders' association**
13th semi-annual convention, Atlantic City, May 20-21. Iron Age 95:1173-8 My 27 '15
14th annual convention, New York, Oct. 28-29. Iron Age 96:1060-3+ N 4 '15
14th annual convention, New York, Oct. 28-29. Iron Tr R 57:906-8 N 4 '15
Spring convention, Atlantic City, May 20-21. Iron Tr R 56:1074-5 My 27 '15
- National metal trades association**
Annual meeting in New York, April 14-15. Iron Age 95:890-3 Ap 22 '15
17th annual convention, New York, April 14-15. Mach 21:769 My '15
Steady progress in co-operation as indicated by reports at the annual convention of the National metal trades association. Iron Tr R 56:825-30 Ap 22 '15
- National municipal league**
20th annual convention, Baltimore, Nov. 18-20, 1914. Munic J 87:812 D 3 '14
- National parks**
Canada
Parks in the Canadian Cordillera. J. A. Allan. Il Sci Am S 80:360-2 D 4 '15
United States
United States will capitalize its scenery. Il Eng Rec 72:568-70 N 6 '15
See also Forest reserves; Rocky mountain national park; Yellowstone national park
- National pipe and supplies association**
Annual convention, with list of those in attendance. Dom Eng 71:229-31 My 22 '15
- National plumbing code, Need of.** F. J. Hanley. Dom Eng 72:176-8 Ag 7 '15
- National rivers and harbors congress**
11th annual convention, Washington, Dec. 9-11, 1914. Eng Rec 70:sup295-6 D 19 '14
- National road.** See Cumberland road
- National safety council**
Annual congress; railroad section. Ry Age 59:813-16 O 29 '15
Convention at Philadelphia, Oct. 19-21. Iron Age 96:982-3 O 28 '15
4th annual congress, Philadelphia, Oct. 19-21. Elec R & W Elec'n 87:804-5 O 30 '15
Fourth congress, Philadelphia, Oct. 19-21. Elec Ry J 46:905 O 30 '15
- National scrap iron and steel association**
Scrap dealers: perfect national organization. Iron Tr R 56:281 Ja 28 '15
- National security league**
Naval and military exhibit of the National security league. Il Sci Am 112:626 Je 26 '15
- National silk convention**
First national silk convention, Paterson, N. J., Oct. 12-14. Textile World 50:191-6 N '15
- National supply and machinery dealers' association**
Annual convention, Philadelphia, June 3-4. Iron Age 95:1290-3 Je 10 '15
Meeting, New York, Oct. 28. Iron Age 96:1101-3 N 4 '15
Meeting, New York, Oct. 28. Iron Tr R 57:908-9 N 4 '15
- National tube company**
Panama-Pacific exposition. Il Power 42:586-8 O 26 '15
- National warm air heating and ventilating association**
Annual meeting, Detroit, Mich., June 9. Metal Work 83:899-901 Je 18 '15
Discussion on warm air heating. Metal Work 83:335-6 F 28 '15
- Regulating warm air furnace practice: tentative recommendations for a standard of procedure.** Metal Work 83:646-8 Ap 30 '15
- Natural gas.** See Gas, Natural
- Natural history museums.** See American museum of natural history; Field museum of natural history
- Natural resources**
See also Forests and forestry; Mineral lands: Mines and mineral resources; Water power
- Natural steam.** See Steam, Natural
- Naval advisory board.** See United States—Naval consulting board
- Naval architects and marine engineers, Society of.** See Society of naval architects and marine engineers
- Naval architecture**
Cable-repairing steamer "Transmitter." F. C. Coleman. Il plan Int Marine Eng 20:382-6 S '15
Calculations for ships' forms; light thrown by model experiments upon resistance, propulsion and rolling of ships. D. W. Taylor. Int Marine Eng 20:443-5 O '15 (to be cont)
Emergency exit from boiler rooms. Il Sci Am 113:201+ S 4 '15
Expansion or contraction of dimensions and the effect upon resistance. H. C. Sadler. diags Int Marine Eng 20:11-14 Ja '15
Experiments with models having radical variations of after sections. D. W. Taylor. Int Marine Eng 20:14-16 Ja '15
Fire-room emergency escape. diags Int Marine Eng 20:410-12 S '15
Institution of naval architects; spring meeting. Engineer 119:299-301, 334-7 Mr 26-Ap 2 '15
Japanese liner Fushimi Maru. Il plan Int Marine Eng 20:311-12 Jl '15
Rules for freeboard. Engineer 119:333-4 Ap 2 '15
Southern Pacific ferry steamer Alameda. E. W. Olin. Il plans Int Marine Eng 20:194-8 My '15
Steamer Emblane. Il plans Int Marine Eng 20:297-8 Jl '15
Steamship design; a method of determining the principal dimensions. H. A. Everett. Int Marine Eng 20:436-40 O '15
S. S. Great Northern and Northern Pacific for the Spokane, Portland & Seattle railway company. Il diags plans Int Marine Eng 19:535-45 D '14
Turbine passenger steamships Great Northern and Northern Pacific. Il plan (supp) Engineer 120:129-31 Ag 6 '15
Typical ships. Il diags plan (supp) Engineer 117:366-70; 118:229-32, 359-62, 673-5 Ap 8, S 4, O 16, D 18 '14
Western river steamers and barges. E. A. Burnside. Il plan Int Marine Eng 20:478-87 N '15
See also Car ferries; Coaling vessels; Ferryboats; Freight ships; Hydroplanes; Launching; Light ships; Motor barges; Motor ships; Propellers; Revenue cutters; Schoolships; Ship resistance; Shipbuilding; Ships; Snag boats; Steamboats; Submarine boats; Tank ships; Torpedo boat destroyers; Towboats; Warships
- Deckhouses**
Scantlings on light superstructures; with discussion. J. Montgomery. Engineer 119:334-5 Ap 2 '15
- Subdivisions**
Application of subdivision rules adopted at International conference; abstract. J. Donald. Int Marine Eng 20:9 Ja '15
Report of the departmental committee on bulkheads. Engineer 119:37-8 Ja 8 '15
Water-tight subdivision of ships. J. J. Welch. Engineer 119:318-19; Discussion. 119:800 Mr 26 '15
- Naval art and science**
See also Coaling at sea; Mines, Submarine; Range finders; Submarine boats; Target practice; Torpedoes; United States—Navy; Warships; also European war—Naval operations

Naval artillery. See Naval guns

Naval battles

- Action in which the *Carmania* sank the *Cap Trafalgar*. *Il Sci Am* 111:449 D 5 '14
- Battle of the North sea. *Il Sci Am* 112:136-7 F 6 '15
- Fight between the *Constitution* and the *Guerrière*. *Il Sci Am* 113:14-15 J1 3 '15
- Wrecking of the cruiser *Emden* by shell fire. *Il Sci Am* 113:376 O 30 '15

Naval consulting board. See United States—Naval consulting board

Naval education

- More military and naval academies. R. S. Spear. *Sci Am* 113:9 J1 3 '15

Naval engineering. See Marine engineering

Naval gunnery. See Gunnery

Naval guns

- Fifteen-inch versus fourteen-inch naval guns. S. L. Sayre. *Sci Am* 113:181 Ag 28 '15
- Hitting an invisible ship at a ten-mile range. *Il Sci Am* 112:218-19 Mr 6 '15
- Manufacture of English 12-inch guns. C. F. Jeansen. *Il Sci Am* 113:491 D 4 '15
- Sponson mounting for guns. T. W. Brown. *Sci Am* 113:487 D 4 '15
- Weight of metal versus volume of fire. *Sci Am* 112:172 F 20 '15
- Which is the most powerful battleship? J. B. Walker. *Il diags Sci Am* 113:80-1 J1 24 '15

Naval invention boards. See Great Britain—Admiralty inventions board; United States—Naval consulting board

Naval reserve. See United States—Navy

Naval stores

- Contributions of the chemist to the naval stores industry. J. E. Teeple. *J Ind & Eng Chem* 7:931-2 N '15
- Naval stores industry. A. W. Schorger and H. S. Betts. *diags* 11 pls maps U S Agric Bul 229:1-58 '15

Navies

- Auxiliary naval vessels; classification of naval vessels—description of the destroyer tender *Melville*. *Il Int Marine Eng* 20:295-7 J1 '15
- Revolutionizing naval construction. *Sci Am* 113:286 O 2 '15
- Rival navies. *Engineer* 119:16-17 Ja 1 '15
- See also Hospital ships; Naval yards and naval stations; Submarine boats; Warships; also names of countries, subhead Navy, e. g. United States—Navy

Navigation

- Electric shriek to warn mariners: Blériot air siren. *Il Sci Am* 112:200 F 27 '15
- Suction between passing ships. S. A. Reeve. *diags Sci Am* S 79:30-2, 46-8, 62-4 Ja 9-23 '15
- See also Aeronautics; Buys; Collisions at sea; Commerce; Fog signals; Lifeboats; Lighthouses; Safety at sea; Ship resistance; Shipping; Ships; Shipwrecks; Sounding; Submarine boats; Submarine signals; Yachts

Navy advisory board. See United States—Naval consulting board

Navy yards and naval stations

- Concrete pile and cylinder foundations at Charleston. *Il diag Eng N* 74:926-9 N 11 '15
- Giant German and Austrian cranes. F. C. Perkins. *Il Sci Am* S 80:145, 148 S 4 '15
- Kiel; its naval and engineering features. A. W. Metcalfe. *diags Engineer* 120:50-2 J1 16 '15; Same cond. *Sci Am* S 80:234 O 9 '15
- Shipbuilding in navy yards. *Int Marine Eng* 20:224-5 My '15
- Torpedo-boat berth at the Charleston navy yard. *Il plan Eng N* 74:873-3 N 4 '15

Neatness

- Value of neatness. *Il Ry Age* 58:467-8 Mr 12 '15

Negotiable Instruments

- Negotiable paper. S. Walton. *J Account* 20: 58-61 J1 '15

Use of trade acceptances in business. El. F. DuBrul. *Am Ind* 16:26-7 N '15

See also Bills and notes; Checks; Commercial law

Neon

- Comparisons of lengths of light waves by interference methods, and some wave

lengths in the spectrum of neon gas. W. F. Meggers. *U S Bur Stand Bul* 12:198-206 N 8 '15

Neon light tubes. J. Boyer. *Il Sci Am* S 78: 410 D 26 '14

Notes on the noble gases. W. S. Andrews. *Gen Elec R* 18:408 My '15

Nepal

Country inaccessible to Europeans. H. J. Elwes. *Il Sci Am* S 79:357-9 Je 5 '15

Nephelometry (photometric analysis)

History of method and development of instruments. P. A. Kober and S. S. Graves. *diags J Ind & Eng Chem* 7:843-7 O '15

Nephelometric estimation of phosphorus. P. A. Kober and G. Egerer. *Am Chem Soc J* 37:2373-81 O '15

Nephelometric estimation of purine bases, including uric acid, in urine and blood. S. S. Graves and P. A. Kober. *Am Chem Soc J* 37:3430-47 O '15

Neponset river

Cost data on the work of improving the Neponset river in Massachusetts. E. M. Blake. *Il Eng & Contr* 43:34-6 Ja 13 '15

Neponset river reclamation. W. B. Conant. *Il Munic J* 39:254-5 Ag 19 '15

Nervous system

Diseases

Nerves and the war. A. Eulenburg. *Sci Am* 112:214 Mr 6 '15

See also Neuralgia

Nests

Insects' nests. *Il Sci Am* S 80:212-13 O 2 '15

Net fabric. See Knit goods

Netherlands

Flooring the sea with concrete. W. J. L. Kiehl. *Il Sci Am* 113:461 N 27 '15

Industries and resources

Supply of the Netherlands with electric energy. *Elec R & W Elec'n* 67:30 J1 3 '15

Neumann's method

Factor to be used for the calculation of the phosphoric acid in Neumann's method. S. L. Jodidi and E. H. Kellogg. *J Fr Inst* 180: 349-67 S '15

Neuralgia

Cause of neuralgia. L. K. Hirschberg. *Sci Am* 111:505 D 19 '14

Neutral zone. See Heating—Tables, calculations, etc.

Nevada

See also Geology—Nevada; Mines and mineral resources—Nevada

Nevada (battleship)

United States dreadnought Nevada. *Il Sci Am* 113:424 N 13 '15

New England association of gas engineers

45th annual meeting, Boston, Feb. 18, 1915. *Am Gas Light J* 102:121 F 22 '15

History of the first American gas association. E. C. Learned. *Am Gas Light J* 102:129-35 Mr 1 '15

New England question box convention. See National electric light association, New England section

New England water-works association

34th annual convention, New York city, Sept. 7-9. *Eng N* 74:566-8 S 16 '15

34th annual convention, New York city, Sept. 7-9. *Munic J* 39:443-6 S 16 '15

New Jersey

Coast

Coast erosion and protection on Long Island and New Jersey. G. O. Case. map *Eng N* 74:348-51, 388-91, 438-42 Ag 19-S 2 '15

New Jersey society of sanitary engineering

Organization. *Dom Eng* 71:184 My 15 '15

2d quarterly meeting, Paterson, N. J., Oct. 30. *Dom Eng* 73:185 N 6 '15

2d quarterly meeting, Paterson, Oct. 30. *Metal Work* 84:598-7 N 5 '15

New Jersey state association of master plumbers

14th annual convention, Trenton, N. J., May 25-27. *Dom Eng* 71:282-4 Je 5 '15

14th annual convention, Trenton, May 25-27. *Metal Work* 83:821-2 Je 4 '15

New Jersey zinc company

Accident prevention by the New Jersey zinc co. B. F. Tillson. Eng & Min J 98:1034-9 D 12 '14

New London, Connecticut**Bridges**

New Haven road to build new Thames river bridge. Eng N 74:1063 N 26 '15

Wharves

Connecticut shipping terminal at New London. W. E. Clarke. II diag Eng N 74:1028-32 N 25 '15

New Mexico**Antiquities**

Curiosities of bygone ages: relics from New Mexico and from Bible lands. II Sci Am 112: 87 Ja 23 '15

Prehistoric irrigation canal in New Mexico. S. M. Johnson. II Eng N 73:561 Mr 25 '15

Industries and resources

Geology of the Burro mountains copper district, New Mexico. R. E. Somers. II maps Am Inst Min E Bul 101:957-96 My '15; Discussion. 108:2476 D '15

Meerschbaum deposits of New Mexico. F. V. Bush. II map Eng & Min J 99:941-3 My 29 '15

See also Mines and mineral resources—New Mexico

New Orleans**Architecture**

Post office, New Orleans. J. G. Rogers. II Arch & Bldg 47:131-6 Ap '15

Hurricane, 1915

Engineering aspects of New Orleans hurricane. W. H. P. Creighton. Eng N 74:710 O 7 '15

Meteorology of West Indian hurricane, Sept. 22-Oct. 2. Eng N 74:710-12 O 7 '15

New Orleans record for succession of storms broken. map Eng Rec 72:562-3 N 6 '15

Performance of the New Orleans water, sewerage and drainage systems during the recent hurricane. G. G. Earl. Eng & Contr 44:387-9 N 17 '15

Structural damage slight in New Orleans storm. J. F. Coleman and W. H. P. Creighton. Eng N 74:765-6 O 14 '15

Sanitary affairs

Concrete a plague-eradicator in New Orleans. H. P. Letton. Eng Rec 71:325-6 Mr 13 '15

Sewerage

Method and cost of making house connections to the New Orleans sewerage system. Eng & Contr 42:203-4 Ag 26 '14

Sewerage and water board

Water and sewer maintenance in New Orleans. II Munic J 39:354-6 S 2 '15

Water supply

New Orleans water consumption. Munic J 39: 255-6 Ag 19 '15

Wharves

Concrete warehouses and terminal plant at New Orleans will cover 100 acres. II plan Eng Rec 71:402-3 Mr 27 '15

Cotton warehouse and terminal at New Orleans. diag Eng N 73:1217 Je 24 '15

New Philadelphia, Ohio

Causeway at New Philadelphia, Ohio. E. Stinzel. II diag Eng Rec 71:78-9 Ja 16 '15

New York (city)

City planning in Queens borough, New York. F. B. Tucker. map Eng N 74:638-41, 689-91 S 20-O 7 '15

Plan for the improvement of Hell Gate, East river. C. D. Ward. map Sci Am 112:432 My 8 '15

Aquarium

Collections of the New York aquarium. R. W. Shufeldt. II Sci Am S 80:52-3 Ji 24 '15

Architecture

Architectural treatment of special elevated stations of the dual system, New York city. S. J. Vickers. II Am Inst Arch J 3:501-2 N '15

Circle building, New York. II plan Arch & Bldg 47:282-8 Ag '15

See also Equitable building; Morgan building; Woolworth building

Bridges

Double-deck swingbridge floated in place. II Eng N 74:437 S 2 '15

Draw span of Harlem river bridge floated to place. II Eng Rec 72:298-9 S 4 '15

Erecting the largest steel arch bridge in existence, Hell Gate, New York. II Sci Am 112: 193 S 4 '15

Erection at Hell Gate arch checks calculations. II Eng Rec 72:220-1 Ag 21 '15

Erection of the world's greatest steel bridge at Hell Gate. II Iron Tr R 57:944-5 N 11 '15

Fabricating steelwork for the Hell Gate arch. II Eng Rec 70:684-6 D 26 '14

Heavy travelers erect Hell Gate arch over East river. II Eng Rec 71:568-70 My 1 '15

Hell Gate arch bridge and the New York Connecting railroad. II diag map Ry R 57: 453-61 O 9 '15

Hell Gate arch erection from Ward's Island started; views. Eng Rec 71:789 Je 19 '15

Largest arch bridge in the world; Hell Gate bridge. II Sci Am 113:340-1 O 16 '15

977-ft. Hell Gate bridge becomes an arch. II Eng N 74:708-9 O 7 '15

Progress on Hell Gate bridge. II Eng N 74: 236-7 Ji 29 '15

Progress on the Hell Gate bridge. II Ry Age 59:865-7 N 6 '15

Record set for weight of steel erected in one day at Randall's Island on Hell Gate bridge approach. II Eng Rec 71:399-400 Mr 27 '15

Six etchings of Brooklyn bridge, by H. De Ville; text by M. Stapley. Arch Rec 38:583-91 N '15

Wood block and granite for bridge floors. E. A. Byrne. II diag Munic Eng 48:387-9 Je '15

World's longest arch, across Hell Gate, New York city, is closed and swung as planned. II Eng Rec 72:438-40 O 9 '15

Buildings, Bureau of

New system of filing building plans saves time. Eng Rec 72:596 N 13 '15

Clubs

Addition to the New York Harvard club. J. T. Boyd, Jr. II diag Arch Rec 38:615-30 D '15

Yale club's new house. M. Wilcox. II plans Arch Rec 38:310-42 S '15

Court house

Daylighting facilities of new court house. L. B. Marks and J. E. Woodwell. Illum Eng Soc 9:661-6 no 7 '14

Education

Learning through doing. Sci Am 112:624 Je 26 '15

Employees

Standardizing engineering positions and salaries in New York city. Eng N 73:54-5 Ja 14 '15

Lighting

High intensity street lighting of European cities compared with New York. C. F. Lacombe. II Illum Eng Soc 9:614-32 no 7 '14

Maps

City planning in Queens borough, New York. F. B. Tucker. maps Eng N 74:689-91 O 7 '15

First complete official map of New York city. II Eng Rec 71:666-7 My 22 '15

Mammoth new map of the city of New York. Eng N 73:991-2 My 20 '15

New York city's twenty-five foot map. C. W. Person. II Sci Am 112:375 Ap 24 '15

Ordinances, etc.

New electrical code for New York. Elec R & W Elec'n 67:756-7 O 23 '15

Regulations governing refrigerants in New York city. Power 40:862 D 15 '14

New York (city)—Continued

Police

Future of the police arm from an engineering standpoint; with discussion. H. Brûère. *Am Soc M E J* 37:77-81 F '15; Same, *Sci Am S* 79:174-5 Mr 13 '15

Public service commission laboratory

Standard practice instructions for concrete testing laboratory. R. E. Goodwin. *Eng N* 73:202-8 F 4 '15

Public works

New municipal asphalt plant for borough of Manhattan. H. W. Durham. *Eng N* 73:1074-7 Je 3 '15

Railroads

Developments at the Grand Central terminal in New York. *Eng N* 73:22J-34 Ag 21 '15

New York freight terminals, 1914. *Ry Age* 59:395-7 Ag 27 '15

Rapid transit

Brooklyn bridge subway connection, New York city. *Eng N* 71:76-7 Ja 16 '15

Design of steel elevated railways, N. Y. rapid transit system. M. E. Griest. *Eng N* 73:971-7 My 20 '15

Detail and fabrication of Harlem river tubes. T. Duckworth. *Eng Soc W Pa* 31:538-60; Discussion. 31:560-83 O '15

Development of New York's rapid transit system resulting in dual contracts. *map Eng Rec* 72:572-4 N 6 '15

Downtown union subway station, New York city. *Eng N* 74:333 Ag 12 '15

East river tunnel shields. *Eng N* 74:952-5 N 11 '15

Electric equipment of Belmont tunnel cars. *Eng N* 74:764-5 Ap 17 '15

Every type of subway construction but air tunnel used on Harlem river section. *Eng Rec* 71:616-19 My 15 '15

Harlem river four-track subway tunnel. O. Hoff. *Eng Soc W Pa* 31:517-37; Discussion. 31:571-83 O '15

How some problems in the New York elevated improvement work were solved. *Eng Rec* 71:781-3 Je 19 '15

Laying new track under an old elevated railway platform. *Eng N* 73:1180-1 Je 17 '15

Mile and a half of track on New York elevated line rebuilt in fourteen days. *Eng Rec* 72:363-4 S 18 '15

New subway and elevated car of the New York municipal railway corporation. *Eng N* 73:208-13 F 13 '15

New York municipal car. *Eng N* 73:265-70, 728-34, 782-8, 858-63, 950-2, 973-8, 1068-71, 1104-9, 1160-5, 1206-10, 1250-4, 1294-8 O 1-15, 29-N 12, 28-D 31 '14

New York rapid transit railway extensions. F. Lavis. *Eng N* 73:665-70, 728-34, 782-8, 858-63, 950-2, 973-8, 1068-71, 1104-9, 1160-5, 1206-10, 1250-4, 1294-8 O 1-15, 29-N 12, 28-D 31 '14

New York subway tapped for new connections while carrying heavy traffic. *Eng Rec* 72:255-7 Ag 28 '15

New York transit contracts. *Eng Rec* 70:662 D 19 '14

Ornamental concrete elevated railway, New York city. M. E. Griest. *Eng N* 74:913-18 N 11 '15

Overcrowding and health. *Sci Am* 112:244 Mr 13 '15

Progress on the dual subway system, New York city. *Ry R* 56:118-19 Ja 23 '15

Railroads under and over the streets of New York. *Eng N* 73:46-7, 64-5+, 96-7+, 142-3+ J 10-17, 31, Ag 14 '15

Rapid steel erection on third track work, Second avenue elevated, New York. *Eng Rec* 71:386-7 Ja 16 '15

Rebuilding elevated railways in New York city. *Eng N* 74:625-30, 633-7 S 30-O 7 '15

Section of New York elevated rebuilt under heavy traffic without an accident. *Eng Rec* 72:470-2 O 16 '15

Short subway section in New York involves many difficulties of design. J. Glaser. *Eng Rec* 71:449-51 Ap 10 '15

Starting six tubes for two new East river subway crossings in New York. *Eng Rec* 71:810-12 Je 20 '15

Stations for third track, New York elevated, placed above existing platforms. *Eng Rec* 72:133-9 J 31 '15

Steel shields protect traffic during removal of New York subway roof. *Eng Rec* 72:110-13 J 24 '15

Subway ventilation schemes. *Eng Rec* 72:13-16 Ag '15

Travel on New York transit lines and steam railroads. *Elec Ry J* 45:134 Ja 18 '15

Typical and special construction used on Queens extension to New York elevated. *Eng Rec* 72:76-8 J 17 '15

See also New York railways

Real estate

New York tax list: fluctuation of real estate values due to lack of regulation of the character of buildings. *Am Inst Arch J* 2:572-3 D '14

Sanitary affairs

New methods of odor elimination at garbage plants indicated by New York tests. I. S. Osborn. *Eng Rec* 72:16-17 J 13 '15

New York city sanitary code. *Metal Work* 33:349 Mr 5 '15

New York city street-cleaning dumping dock completed. *Eng N* 74:958 N 11 '15

Reduction of New York's garbage. *Eng N* 73:35-9 J 8 '15

Sewerage

Construction of the Metcalf ave. sewer, borough of the Bronx. G. L. Christian. *Eng N* 72:1164-7 D 10 '14

Design and construction features of reinforced concrete sewer siphons under New York subways. T. L. Wilson. *Eng & Contr* 43:128-9 F 10 '15

Disposal of Greater New York's sewage: general plans. C. E. Gregory. *Munic J* 39:692-4 N 4 '15

Main drainage works proposed for New York. G. A. Soper. *Eng N* 73:131-2 F 14 '14

Streets

Manhattan pavements limited to three standard types. H. W. Durham. *Eng Rec* 71:202-3 F 13 '15

Methods introduced in New York last winter cut cost and increased speed of snow removal. J. T. Fetherston. *Eng Rec* 71:640-1 My 22 '15

New York city experience with asphalt block pavements. E. J. Morrison. *Eng N* 73:645-6 Ap 1 '15

New York street cleaning. *Munic J* 39:842-4 D 2 '15

New York's snow removal plans. *Munic J* 37:827-9 D 10 '14

Snow removal in New York. *Munic J* 38:805-7 Je 10 '15

Street cleaning in New York. *Eng N* 74:46-8 Ja '15

Street work in New York. *Munic J* 39:3-4 J 1 '15

Underground pipes in New York city streets. *Eng N* 74:280-1 Ag 5 '15

Value of paving materials disclosed by two years' service test. H. W. Durham. *Eng Rec* 71:203-4 F 13 '15

Subway collapse, 1915

Collapse of streets in New York city during subway construction. *Ry R* 57:424 O 2 '15

Collapse of the subway work on Seventh avenue. *Sci Am* 112:295 O 2 '15

Comparative timbering costs in mine and subway. *Eng & Min J* 100:689-90 O 23 '15

Danger of collapse in subways is not general. F. Lavis. *Eng N* 74:666-7 S 30 '15

Dynamite explosion causes new subway cave-in in New York. *Eng N* 74:631-2 S 25 '15

Not merely mining but bridge building; the importance of diagonal bracing in subway timbering. *Eng N* 113:324 O 9 '15

New York (city)—Subway collapse—*Continued*. Proper timbering would have prevented subway collapse. J. Seward. Eng N 74:768-9 O 14 '15

Public-service engineers on New York subway accidents. Eng N 74:762-3 O 14 '15

Recommendations for safety of subway timbering. Eng N 74:716 O 7 '15

Rock slide causes second collapse of subway decking. Eng Rec 72:429+ O 2 '15

Rock slides greatest menace to New York subway work; report of E. S. Davis and H. H. Quimby. Eng Rec 72:461+ O 9 '15

Subway timbering accidents; two New York streets fall. 11 diags Eng N 74:662-6 S 30 '15

Timbering in New York subway. J. Seward; P. E. Barbour. Eng & Min J 100:636-7 O 28 '15

Timbering in the New York subway. P. E. Barbour. 11 diags Eng & Min J 100:568-70 O 2 '15

Subway fire, 1915

Disastrous burnout in a subway manhole. Sci Am 112:86 Ja 16 '15

Subway fire inquiry and orders. Elec Ry J 45:148-9 Ja 16 '15

Unjust criticism of the subway system of New York. Sci Am 112:62 Ja 16 '15

Where the smoke helmet would be invaluable: a lesson from the New York subway fire. 11 Sci Am 112:85 Ja 16 '15

Water supply

Conditions encountered and methods employed in laying water pipes in the congested streets of New York city. M. Blatt. Eng & Contr 44:246-7 S 29 '15

Improving sanitary conditions on the Ashokan reservoir watershed. G. G. Honness. Eng & Contr 44:213 S 15 '15

Maintenance of the water supply distribution system of New York city. W. W. Brush. 11 maps Am Water Works Assn J 2:206-37 Mr '15; Same cond. Eng & Contr 44:44-7 J1 21 '15; Discussion. F. B. Nelson. Am Water Works Assn J 2:306-10 Je '15

See also Catskill aqueduct

Wharves

Congestion of freight at New York piers. 11 Int Marine Eng 20:80 F '15

Hunt's Point terminal in New York involves difficult bulkhead construction. 11 diags map Eng Rec 72:104-8 J1 24 '15

New York's new piers. 11 diags Engineer 120: 193-5, 204 Ag 27 '15

Notable step in the building of New York's great piers. R. G. Skerrett. 11 Sci Am 113: 160-1 Ag 31 '15

Steamship terminal in the Bronx. 11 diag maps Sci Am 112:80-1 Ja 23 '15

New York (state)

See also Roads—New York

Constitution

Committee of engineers recommends amendments to the New York constitution. Eng N 73:842 Ap 29 '15; Same. Eng & Contr 43:421-2 My 12 '15; Same. Eng Rec 71:561-2 My 1 '15

Engineers and the New York state constitutional convention. Eng N 73:802-3 Mr 25 '15

Engineers discuss changes in New York state constitution. Eng Rec 71:382 Mr 20 '15

Engineers present open letter to chairman of New York constitutional convention. Elec R & W Elec'n 67:484 S 11 '15

Engineers' recommendations for amendments to the New York constitution. Eng N 73: 834-6 Ap 29 '15

Highway department

Need, preparation and utility of statistical records in a highway department. P. P. Farley. Eng & Contr 44:187-9 S 8 '15

State-wide survey locates road-making materials in New York. Eng Rec 71:488-9 Ap 17 '15

New York Central & Hudson River railroad Annual report. Ry Age 58:683-5, 722-4 Mr 26 '15
Electrification. E. B. Katta. W Soc E J 20:318-22 Ap '15

Rail sections as one element in steam and electric traction. P. H. Dudley. diags Gen Elec R 17:1036-46 N '14; Same. Sci Am S 78:362-3, 370-1 D 5-12 '14

New York connecting railroad Construction. 11 diags map Ry Age 59:421-5 S 3 '15

Hell-Gate arch bridge and the New York connecting railroad. 11 diag map Ry R 57: 453-61 O 9 '15

New York electric railway association 33d annual convention, June 29-30. Elec Ry J 46:14-20 J1 3 '15

20th quarterly meeting at Lake George, March 2-3. Elec Ry J 45:464-7 Mr 6 '15

New York master printers' association Address to the members of the New York master printers' association. C. F. Crawford. Inland Ptr 54:819-20 Mr '15

New York, New Haven & Hartford railroad Annual report for the year ending June 30, 1915. map Ry Age 59:790-2, 830-6 O 29 '15

Conditions affecting the success of main line electrification. W. S. Murray. 11 Am Inst E E Pro 34:1873-1913 Ag '15; Same. J Fr Inst 179:513-57 My '15; Same cond. Elec Ry J 45: 229-31 Ja 30 '15; Same cond. Ry Age 58:923-8 Ap 30 '15; Discussion. Am Inst E E Pro 34: 1913-32 Ag '15; Same. J Fr Inst 180:75-99 J1 '15

Electrification. W. S. Murray. W Soc E J 20: 322-7 Ap '15

New England and the New Haven road. H. Elliott. Ry Age 58:881-2 Ap 23 '15

New Haven operating results. Elec Ry J 46: 101-2 J1 17 '15

New Haven road to build new Thames river bridge. Eng N 74:1053 N 25 '15

Overhead contact systems, construction and costs. E. J. Amberg. pls Am Inst E E Pro 34:1255-66 Je '15; Abstract. Elec Ry J 46:56 J1 10 '15

New York public service commissions New York commissions. Elec W 65:375 F 6 '15

Public service commission inquiry. Elec Ry J 45:302, 389, 430-1, 477, 521 F 6, 20-Mr 13 '15

New York railways Annual report for the fiscal years ended June 30, 1914 and 1915. Elec Ry J 46:985 O 23 '15

New York state association of master plumbers 27th annual convention, Syracuse, March, 1915. Dom Eng 70:348-50 Mr 13 '15

27th annual convention, Syracuse, March, 1915. Metal Work 83:448-4 Mr 10 '15

New York state barge canal Barge canal navigation aids. Eng N 74:263 Ag 5 '15

Concrete construction on the New York state barge canal. G. C. Mills. 11 diags Concrete Cem 6:205-7 Ap '15

Concrete plant for Barge canal lock. 11 diags Eng N 73:1078-9 Je 3 '15

Construction of the Barge canal crossing of Oak Orchard creek. E. Low. 11 diags Eng N 73:430-2 Mr 4 '15

Cost of the Erie barge canal. H. G. Moulton. Ry Age 59:91-2 J1 16 '15

Cost of the New York barge canal. Eng N 73: 178-9 Ja 28 '15

Low headway on the New York barge canal as a hindrance to traffic. F. L. Neall. Eng N 72:1226 D 17 '14

New York barge canal, in miniature, operates at exposition. 11 Eng Rec 71:539 Ap 24 '15

Waterway rivaling in some respects the Panama canal. R. F. Yates. 11 map Sci Am 111: 492-3 D 12 '14

Waterways from the Great Lakes to the Atlantic. Eng N 73:132-3 Ja 21 '15

New York state conference of mayors Sixth annual conference, June 1-3. Munic J 38: 819-20 Je 10 '15

New York state motor federation New state federation formed in New York. Horseless Age 34:863-4 D 16 '14

New York state railways Results obtained by instruction department, New York state railways, Rochester lines. G. Lawson. Elec Ry J 45:867-9 F 20 '15

New York times

Use of electricity in a newspaper plant: motor and control equipment for production of New York times. *Il Elec W* 65:1627-31 Je 19 '15

New York, Westchester and Boston railway

Catenary construction. S. Withington. *Il diag plans J Fr Inst* 178:705-42 D '14

Construction, maintenance and cost of overhead contact systems; catenary construction. F. Zogbaum. *Am Inst E E Pro* 34:1267-81 Ja '15; *Abstract. Elec Ry J* 46:56-7 JI 10 '15

Saving power by watt-meter records. *Elec Ry J* 46:823-3 O 16 '15

Signal maintenance methods. *Il Elec Ry J* 45:561-5 Mr 20 '15

New York zoological park

Rare amphibians at the New York zoological park. *Il R. L. Dittmars. Sci Am S* 80:196 S 25 '15

New Zealand

See Hydroelectric plants—New Zealand

Newark, New Jersey

Proposed new charter for Newark. *Munic Eng* 49:140 O '15

Three years' growth of street traffic in Newark. H. Bartholomew. *Eng N* 74:538-9 S 18 '15

Rapid transit

Newark railway terminal and utilities building. *Il plans Eng N* 74:836-40 O 23 '15

Newark terminal to relieve traffic congestion. *diag maps Eng N* 74:680-2 O 7 '15

Sewerage

New methods of pneumatic tunneling aid safe and rapid completion of Passaic valley sewer contract. *Il diag Eng Rec* 71:130-3 Ja 30 '15

Water supply

Unique water-supply. *Il Eng N* 73:863-5 My 6 '15

Wharves

Newark is rapidly creating its own water terminal in New Jersey meadows. *Il diag plan Eng Rec* 72:201-3 Ag 14 '15

Newell, Frederick Haynes, 1862-

New professor of civil engineering, University of Illinois. *por Ry R* 56:862-3 My 15 '15; *Munic Eng* 48:813 My '15

Newfoundland

Newfoundland's mineral resources. P. B. McDonald. *map Eng & Min J* 100:674-5 O 23 '15

News associations. See Associated press**Newspaper offices**

News-press building, St. Joseph, Mo.; views and plans. *Arch Rec* 37:560-2 Je '15

See also New York Times

Newspapers

Advertising service of the weekly. *Inland Ptr* 55:475-7 JI '15

Boosting the advertising patronage in a local paper. C. L. Chamberlin. *Inland Ptr* 55:761-5 S '15

Conflict between news and advertising. J. C. Morrison. *Inland Ptr* 54:681-4 F '15

Game of killing off your competitor. J. C. Morrison. *Inland Ptr* 54:640-1 Ja '15

Increasing newspaper circulation. B. O. Brown. *Inland Ptr* 55:182-4 My '15

Newspaper survey. J. C. Morrison. *Inland Ptr* 55:637-8 JI '15

Newspaper work. J. C. Morrison. See monthly numbers of Inland printer

Press and the rate advance case. *Ry Age* 58:776 Ap 9 '15

Review of newspapers and advertisements. J. L. Frazier. See monthly numbers of Inland printer

Solicitor wanted for country weeklies; subscription price. J. C. Morrison. *Inland Ptr* 55:241-4 My '15

Some subscription suggestions. J. C. Morrison. *Inland Ptr* 55:85-7 Ap '15

Unlimited possibilities of the live country newspaper. A. G. Brenton. *Inland Ptr* 54:412 D '14

Why do we lose money on special editions?

J. C. Morrison. *Inland Ptr* 55:390-1 D '15

See also Advertising; Journalism; Publicity; Reporting; Waste paper; also New York times

Niagara falls

Intermittent waterfall; using the power of Niagara falls without impairing its scenic beauty. E. Dunn. *Il Sci Am* 113:492-3+ D 4 '15

Nickel

Canada's nickel trouble. *Eng & Min J* 99:30-1 Ja 2 '15

Cobalt and nickel assay. S. Fischer, jr. *Met & Chem Eng* 12:773-4 D '14

Nickel, copper and mercury as affected by the war. *J Ind & Eng Chem* 7:71-2 Ja '15

Welding up scrap nickel anodes. *Il Elec R & W Elec'n* 66:1210-11 Je 26 '15; Same. *Eng & Min J* 100:19 JI 3 '15; Same. *Foundry* 43:283-4 JI '15; Same. *Met & Chem Eng* 13:453-4 JI '15; Same cond. *Iron Age* 95:1342 Je 24 '15; Same abr. *Metal Ind n s* 13:297 JI '15

See also Ilium; Nickel chromium; Nickel steel

Nickel chromium

Court of appeals decision in nickel-chromium resistor suit. *Met & Chem Eng* 13:414-15 JI '15

Nickel oxide

Emissivity of metals and oxides: nickel oxide (Ni O) in the range 600° to 1300° C. G. K. Burgess and P. D. Foota. *diag U S Bur Stand Bul* 11:41-64 N 15 '14

Nickel plating

Aluminum-nickel. J. Canac and E. Tassilly. *Eng M* 49:273-4 My '15

Bar nickel anodes vs. flat. J. A. Hall. *Metal Ind n s* 13:336 Ag '15

Determining weight of deposit. L. C. Wilson. *Metal Ind n s* 13:505-6 D '14

Development of nickel plating. E. Weston. *J Ind & Eng Chem* 7:249-50 Mr '15

Efficiency in the plating room. E. P. Later. *Il Foundry* 43:360-5 S '15

Methods used by plants to produce bright nickel deposits. C. H. Proctor. *Metal Ind n s* 13:57 F '15

Nickel-plating aluminum. *Elec R & W Elec'n* 66:1056 Je 5 '15

Nickel-plating on aluminum. *Sci Am S* 80:197 S 25 '15

Plating of the troublesome die-castings. S. Herrick. *Metal Ind n s* 13:373-4 S '15

Successful nickel plating of die castings or articles made from sheet zinc. C. H. Proctor. *Metal Ind n s* 13:274 JI '15

Nickel silver. See German silver**Nickel steel**

Data on nickel steels. G. W. Armstrong. *Eng & Contr* 44:63-4 JI 21 '15

Longest simple truss span in world to be erected over Ohio river at Metropolis. *diag Eng Rec* 72:53-4 JI 10 '15

Night work

How to organize your night force. H. C. White. *Iron Tr R* 56:1056-8 My 27 '15; Same. *Iron Age* 95:1174-6 My 27 '15; Same. *Ind Eng* 15:95-7 S '15; *Abstract. Mach* 21:905 JI '15

Nitrates

Binary and ternary systems of the nitrates of the alkali and alkaline earth metals. W. D. Harkins and G. L. Clark. *Am Chem Soc J* 37:1816-28 Ag '15

Determination of nitrates in soil. R. S. Potter and R. S. Snyder. *J Ind & Eng Chem* 7:863-4 O '15

Titration of nitrates with ferrous sulfate. F. C. Bowman and W. W. Scott. *J Ind & Eng Chem* 7:766-9 S '15

Nitric acid

Action of nitric acid on iodoanil. L. Clarke and E. K. Bolton. *Am Chem Soc J* 36:1893-1908 S '14

Boiling-point of aqueous solutions of nitric acid at different pressures. H. J. M. Creighton and J. H. Githens. *diag J Fr Inst* 179:161-9 F '15

Germany's nitrate supply. *Sci Am* 112:216 Mr 6 '15

- Nitric acid—Continued**
Strength of nitric acid, period of extraction, and ignition as affecting the gravimetric determination of phosphoric acid in soils. O. L. Brauer. *J Ind & Eng Chem* 6:1004-5 D '14
Synthetic production of nitric acid. *Sci Am S* 30:208 S 25 '15
- Nitrobenzene**
Studies of a new kind of e.m.f. R. Beutner. *diags Am Chem Soc J* 36:2040-59 O '14
- Nitrocarboxypyrrolic acid**
Constitution of the nitro- α -carboxypyrrolic acids. W. J. Hale and W. V. Hoyt. *Am Chem Soc J* 37:2538-52 N '15
- Nitrocellulose**
Chemical engineering in nitrocellulose manufacture. S. L. Stadelman. *Met & Chem Eng* 13:361-6 Je '15
Contributions of the chemist to the celluloid and nitrocellulose industry. R. C. Schupp-haus. *J Ind & Eng Chem* 7:290 Ap '15
Proximate analysis of nitrocellulose solutions and solvents. A. D. Conley. *J Ind & Eng Chem* 7:832-7 O '15
- Nitrogen**
American nitrogen industry. *Eng N* 73:557 Mr '15
Availability of organic nitrogen. J. E. Breckenridge. *Il J Ind & Eng Chem* 7:671-3 Ag '15
Carbonitride furnace. *diag Met & Chem Eng* 13:642 S 15 '15
Chemical industries of Germany. P. F. Frankland. *Met & Chem Eng* 13:332 Je '15; Same. *Sci Am S* 79:390 Je 19 '15
Commercial nitrogen fixation; with discussion. S. Peacock. *Met & Chem Eng* 13:325-6 My '15
Comparison of the Gunning-copper method with the Kjeldahl-Gunning-Arnold method for the determination of nitrogen. O. F. Jensen. *J Ind & Eng Chem* 7:38-9 Ja '15
Comparison of various modifications of the Kjeldahl method with the Dumas method of determining nitrogen in coal. A. C. Fieldner and C. A. Taylor. *J Ind & Eng Chem* 7:106-12 F '15; Same. *U S Bur Mines Tech Pa* 64:1-22 '15
Cyanamid process. F. S. Washburn. *Met & Chem Eng* 13:309-14 My '15
Cyanamid works at Niagara Falls. *Il plan Eng N* 73:16-21 Ja 7 '15
Determination of nitric nitrogen in soils. E. R. Allen. *diags J Ind & Eng Chem* 7:521-9 Je '15
Fixation of atmospheric nitrogen. L. L. Summers. *diags Am Inst E E Pro* 34:337-71 Mr '15; Abstract, with discussion. *Met & Chem Eng* 13:241-3 Ap '15; Discussion. *Am Inst E E Pro* 34:2656-61 N '15
Fixation of atmospheric nitrogen. *Sci Am S* 79:338 Je 19 '15
Fixation of atmospheric nitrogen. W. S. Landis. *Il J Ind & Eng Chem* 7:433-8 My '15; Same. *Met & Chem Eng* 13:213-20 Ap '15
Fixation of atmospheric nitrogen; a patent by S. Peacock. *Met & Chem Eng* 13:251 Ap '15
Improved method for the determination of nitrogen in steel. L. E. Barton. *J Ind & Eng Chem* 6:1012-18 D '14
Kjeldahl-Gunning-Arnold method for nitrogen. J. M. Pickel. *J Ind & Eng Chem* 7:357 Ap '15
New nitrogen fixation furnace. *diags Eng M* 49:104-5 Ap '15
Occurrence and influence of nitrogen on iron and steel; abstract and discussion. N. Tschischewski. *Iron Age* 96:952-4 O 21 '15; *Engineer* 120:834-5 O 8 '15
Oxides of nitrogen from air; patent of F. I. du Pont. *Met & Chem Eng* 13:642 S 15 '15
Plumbosax process for producing oxygen and nitrogen from atmospheric air; abstract. G. Kassner. *Am Soc M E J* 37:119 F '15
Producing nitrogen compounds; discussed by the New York section of the A. I. E. E. *Elec W* 65:723 Mr 20 '15; *Elec R & W Elec'n* 66:536 Mr 20 '15
Recent advances in the chemistry of the cyanogen compounds. J. E. Clannell. *Am Inst Min E Bur* 106:8120-3 O '15; Same. *Met & Chem Eng* 13:756 O 15 '15
- Nitrogen compounds**
Free energy of nitrogen compounds. G. N. Lewis and E. Q. Adams. *Am Chem Soc J* 37:2308-16 O '15
- Nitrogen lamps.** See **Electric lamps, Tungsten**
- Nitro-hydroxycinnamic acid**
3-nitro-4-hydroxycinnamic acid and its methyl ether. T. B. Johnson and E. T. Kohmann. *Am Chem Soc J* 37:162-7 Ja '15
- Nitroso compounds**
Nitroso derivatives of semicarbazinodiacetic acid esters. J. R. Bailey and D. F. Snyder. *Am Chem Soc J* 37:942-6 Ap '15
- Nitrosulphonic acids**
Tolyl esters and toluimides of the nitro-sulphonic acids of *p*-xylene. R. C. Huston. *Am Chem Soc J* 37:3119-22 S '15
- Nitrotyrosine**
Studies on nitrated proteins: the determination of the structure of nitrotyrosine. T. B. Johnson and E. T. Kohmann. *Am Chem Soc J* 37:1863-84 Ag '15
Studies on nitrated proteins; the identification of 3-nitrotyrosine among the products of hydrolysis of nitrated fibrin. T. B. Johnson. *Am Chem Soc J* 37:2598-603 N '15
- Noble, Alfred, 1844-1914**
Past-president, W. S. E.; memoir. *por W Soc E J* 20:568-607 S '15
- Noble, Sir Andrew, 1831-1915**
Sketch. *por Engineer* 120:406-7 O 29 '15
- Nodulizing**
Nodulizing in copper metallurgy. J. H. Payne. *Eng & Min J* 99:273-4 F 6 '15
- Noise**
Reduction or elimination of noise attending the operation of mechanical ventilating machinery. R. W. Fryor, jr. *plans Heat & Ven* 11:26-9 Ag '14; Same. *Am Soc Heat & V E* 20:320-5 '14; Same. *Iron Age* 94:210-11 Ji 28 '14; Same. *Metal Work* 82:275-6 S 4 '14; Discussion. *Am Soc Heat & V E* 20:325-9 '14; Discussion. *Heat & Ven* 11:44-5 N '14
- Nolachuckey river**
Design low dam for 30-foot height increase across Nolachuckey river. W. V. N. Powelson. *Il Eng Rec* 71:175-6 F 6 '15
- Nomographs**
Nomographic charts for Kutter's formula. G. S. Coleman. *Eng Rec* 72:489 O 16 '15
Nomographic charts for simple beam design. C. D. Conklin, jr. *Eng Rec* 71:809 Je 26 '15
Nomographic solutions for formulas of various types. R. C. Strachan. *Eng Rec* 71:807-9 Je 26 '15
- Nonane**
Normal nonane. L. Clarke and R. Adams. *Am Chem Soc J* 37:2538-8 N '15
- Norfolk, Virginia**
Sanitary affairs
Garbage collection and incineration at Norfolk. Va. W. R. Russell. *Il diags Munic J* 38:183-3 F 11 '15
- Norfolk & Western railroad**
Automatic signals on Norfolk & Western electrified line. *Il Ry Age* 59:31-2 Ji 2 '15
Building low-grade line for Norfolk & Western R. R. *Il map Eng N* 74:818-21 O 28 '15
Electric traction on the Norfolk & Western railway. *Il diag plans Eng N* 73:1192-5, 1238-43 Je 17-24 '15
Electrification. *Il Power* 41:830-5 Je 22 '15
Electrification. *Il plans map Elec Ry J* 45:1058-60 Je 5 '15
Electrification of the Elkhorn grade. *Il plans Ry R* 56:756-61, 791-7; 57:101-7, 150-2 Je 5-12, Ji 24-31 '15
Electrification of the Elkhorn grade. *Il Sci Am S* 79:372-4 Je 12 '15
Elkhorn grade electrification. *Il diags map Ry Age* 58:1153-63 Je 4 '15
Financial condition. *map Ry Age* 59:491-2 S 17 '15
New field for railway electrification has been developed by the Norfolk & Western. *Il Eng Rec* 71:704-6 Je 5 '15
- Norfolk & Western and Pennsylvania electrifications.** G. Gibbs. *W Soc E J* 20:308-14 Ap '15
- Northern Pacific railway**
Annual report for the fiscal year ended June 30, 1914. *map Ry Age* 58:611-13, 650-4 Mr 19 '15

Northern Pacific railway—Continued

Northern Pacific Ry. near Tacoma—new coast line. *Il* diag map Eng N 73:562-5 Mr 25 '15
 Point Defiance line eliminates last heavy grade between Tacoma and Portland. D: L. Soltan. map Eng Rec 71:744-5 Je 12 '15

Northern white cedar association

19th annual convention, Minneapolis, Jan. 26. Elec R & W Elec'n 66:264-6 F 6 '15
 19th convention, Minneapolis, Minn., Jan. 26 and 27, 1915. Elec W 66:369 F 6 '15

Northwest

Industrial resources and opportunities of the Northwest. H. K. Benson. Met & Chem Eng 13:589-92 S 15 '15; Same. J Ind & Eng Chem 7:981-4 N '15

Northwest electric light and power association

8th annual convention, Portland, Ore., Sept. 8-11. Elec R & W Elec'n 67:528-34 S 18 '15
 8th annual convention, Portland, Ore., Sept. 8-11. Elec W 66:567-9, 624-6 S 11-13 '15

Norwalk, Connecticut**Water supply**

Seven years' successful operation of double sand filtration plant at South Norwalk, Conn., in removal of objectional tastes and odors. H. W. Clark. Eng & Contr 44:262-3 O 6 '15

Norway**Industries and resources**

Grong copper and pyrites mines of Norway. A. D. Udhany. *Il* map Eng & Min J 99:389-92 My 22 '15

See also Water power—Norway

Notes. *See* Bills and notes

Nottingham, England

To make Nottingham a port. Sci Am S 79:342 My 29 '15

Sewerage

How the city of Nottingham solved its sewage disposal problem. C. M. Hitch. Dom Eng 72:377-8 S 26 '15; Same. Metal Work 84:399 S 24 '15

Sewage disposal at a profit in Nottingham. Sci Am 113:442 N 20 '15

Noyes, Arthur Amos, 1866-

Gibbs medal award. W. D. Harkins; J. Stieglitz. por J Ind & Eng Chem 7:449-50 My '15

Nozzles

Binks spray nozzle. diag Power 42:380 S 14 '15

Calculation of the Laval nozzle by the PV diagram; abstract. A. Balog. Am Soc M E J 37:481-2 Ag '15

Exhaust nozzle with internal projections. diags Ry Age 58:799 Ap 9 '15; Same. Ry Age (Mech ed) 89:198-9 Ap '15

Method of adjusting sewage sprinklers. A. T. Nabstedt. diag Eng N 74:219-20 Jl 29 '15

Present status of the variable exhaust. J. S. Bell. *Il* diags Ry R 56:797-9 Je 13 '15

Thomas spray head. *Il* Power 42:644-5 N 9 '15
 Universal sewage spraying nozzle. diag Eng & Contr 44:96 Ag 4 '15

Variable blast nozzle on American locomotives. diags Engineer 120:232 S 3 '15

Will Quiz asks about the shape of steam nozzles. Power 41:56 Ja 12 '15

See also Carbureters

Nuisances

Power plants as nuisances. A. L. H. Street. Power 42:486-7 S 28 '15

Numbers

Curious property of numbers. J. Bowden. Sci Am S 79:371 Je 12 '15

See also Numerals

Numerals

How we got our alphabet: the numerals. W. Rice. Inland Ptr 55:389-90 Je '15

See also Numbers

Nurses and nursing

See also First aid in illness and injury

Nutrition

New era in the science of nutrition; experiments of T. B. Osborne and L. B. Mendel. R. L. Kahn. Sci Am S 79:182-3 Mr 20 '15

Salt and its relation to nutrition. P. G. Stiles.

Sci Am S 79:295 My 8 '15

See also Food; Metabolism

Nuts (machinery). *See* Bolts and nuts

Nystagmus

Nystagmus (trembling of the eyes) of the miners. Colliery 35:505 Ap '15

O**Oakland, California****Streets**

City of Oakland, California, and its street work. W. H. Jordan. *Il* Good Roads n s 10:127-32 S 4 '15

Observatories, Astronomical. *See* Astronomical observatories

Occupational diseases. *See* Diseases, Industrial Occupations

Film may help in the selection of an occupation. Sci Am S 80:333 N 20 '15

Recognizing vocations from the teeth. *Il* Sci Am S 79:300 My 8 '15

Selecting the right occupation. Eng N 74:221-2 Ag 12 '15

See also Business

Diseases and hygiene

See Diseases, Industrial; Foundry sanitation; Lead poisoning; Zinc poisoning

Ocean

Formation of primitive oceans. Sci Am S 80:211 O 2 '15

Seeping under water. *Il* diags Sci Am S 80:97, 101 Ag 14 '15

See also Commerce; Dredging machinery; Gulf stream; Icebergs; Sea walls; Sea water; Ships; Sounding; Waves

Ocymum pilosum Roxb

Oil of ocymum pilosum Roxb. K. Bhaduri. Am Chem Soc J 36:1772-3 Ag '14

Odessa

Odessa, the grain port of Russia. Sci Am S 79:3 Ja 2 '15

Odors

Investigations on the nature and elimination of odors and dust from a garbage reduction plant. H. W. Mahr and A. C. Kraft. *Il* diags J Ind & Eng Chem 7:778-85 S '15

Loss of weight of musk in a current of dry air. C. B. Bazzoni. diag J Fr Inst 180:463-9 O '15

Prevention of odors at city refuse disposal works. R. Hering. Eng & Contr 43:81-2 Ja 27 '15

See also Perfumery

Office buildings

Circle building, New York. *Il* plan Arch & Bldg 47:282-8 Ag '15

Commonwealth Edison company formally opens new headquarters in Edison building, Chicago. *Il* Elec W 66:682-3 S 25 '15

Formal opening of Commonwealth Edison company's new office building, Chicago. *Il* Elec R & W Elec'n 67:684-5 S 25 '15

Gas burners in 2750-hp. office-building boiler plant. *Il* diag Power 42:79-80 Jl 20 '15

Heating and ventilating an office building by electricity: Hydraulic power co.'s plant at Niagara Falls. C. F. Herington. *Il* diags plan Heat & Ven 12:18-22 Je '15

Heating and ventilating conditions in large office building. C. E. A. Winslow and G. F. Maglott. Heat & Ven 12:26-31 F '15

Heating and ventilation of offices and banking rooms. C. L. Hubbard. diags Brickb 23:307-10 D '14

L. C. Smith building, Seattle, Wash. *Il* plan Arch & Bldg 46:471-5 D '14

Land and loan office for H. C. Adams, Algona, Ia.; plan. Arch & Bldg 47:384. F '15

New Commonwealth Edison building. *Il* Elec R & W Elec'n 66:1036-7 Je 5 '15

New Delaware and Hudson office building at Albany, N. Y. M. T. Reynolds. *Il* Concrete Cem 6:289-93 Je '15

Office buildings—Continued

- Office-building service data. W. R. Metz. Power 42:126-6 J1 27 '15
- Plumbing system of modern office building. II plan Metal Work 84:279-80 Ag 27 '15
- Power plant of the new Equitable building, New York. II Elec W 66:81-5 J1 10 '15
- Small office building remodeled from a group of old brick houses. II plans Brickb 24:73-4 Mr '15
- Structural features of Northwestern-mutual life insurance building, Milwaukee. diags Eng Rec 71:206-7 F 13 '15
- Types of elevator lobbies in office buildings. C. F. Baker. II plans Arch Rec 33:681-40 D '15
- Vanderbilt concourse offices. II plans Arch & Bldg 47:148-52 Ap '15
- Widener building, Philadelphia, Pa. II plans Arch & Bldg 47:349-54 O '15
- Wind stresses in the steel frames of office buildings. A. Smith. tables pls W Soc E J 20:341-64 Ap '15
- Wind stresses in the steel frames of office buildings. W. M. Wilson and G. A. Maney. tables III U Eng Exp Sta Bul 30:1-88 '15; Abstract. Eng Rec 73:231-2 Ag 21 '15
- Wind stresses in the steel frames of office buildings; with discussion. W. M. Wilson. tables pls W Soc E J 20:365-90 Ap '15
- Work of the Chicago ventilation commission. II plans Heat & Ven 12:26-31 My '15
- See also High buildings; Printing offices; also Equitable building, New York; Woolworth building, New York
- Lighting**
- Illumination systems for good lighting of offices. A. B. Oday and R. E. Harrington. II Elec W 65:314 Mr 27 '15
- Office management**
- Efficiency in conduct of office business; new methods in a naval bureau. Ry R 57:472-4 O 9 '15
- Handling correspondence at the United States department of state. W. Fawcett. II Inland Ptr 56:109-12 O '15
- Minor points that are sometimes neglected. C. N. Stannard. Am Gas Light J 103:282-3 N 1 '15
- Office helps for the master plumber. J. F. Scott. Dom Eng 71:66-7; 72:7-8 Ap 17, J1 8 '15
- Office management. J. P. Brophy. Mach 22: 209 N '15
- Office methods for the electrical contractor. Elec R & W Elec'n 66:550-2 Mr 20 '15
- Office system and forms for the electrical contractor. C. M. Converse. Elec R & W Elec'n 67:160-2 J1 24 '15
- Scientific management in the office. R. T. Kent. Iron Age 95:32-6, 142-4 Ja 7-14 '15
- Ogontz Hill, Philadelphia**
- Stucco in suburban architecture—notes on Ogontz Hill, Philadelphia. O. C. Hering. II Concrete Cem 6:9-14 Ja '15
- Ohio electric light association**
- Convention at Cedar Point; relations with the public, experience with gas-filled lamps, and high-tension insulators among topics discussed. Elec W 66:219-20 J1 24 '15
- Meeting of the committee on new business co-operation. Elec R & W Elec'n 67:555-6 S 25 '15
- Meeting of the committee on new-business co-operations. Elec W 66:662 S 18 '15
- Ohio central-station men meet in Cleveland. Elec R & W Elec'n 66:192-3 Ja 30 '15
- 21st annual meeting, Cedar Point, July 20-23. Elec R & W Elec'n 67:196-200 J1 31 '15
- Ohio master plumbers' association**
- Annual convention; discussion of federal indictment of officers and members. Metal Work 83:302-4 F 13 '15
- 24th annual convention, Akron, O., Feb. 9-11. Dom Eng 70:212-15 F 13 '15
- Ohio master sheet metal contractors' association**
- 1st annual convention, Dayton, June 2-3. Metal Work 83:358-61 Je 11 '15
- Ohio sheet metal contractors organize. Metal Work 83:235-6 F 5 '15

Ohio river

- Port improvements along the Mississippi and Ohio rivers. Eng N 73:1066-8 Je 8 '15
- Ohio state association of builders' exchanges**
- 9th annual convention, Columbus, O. Bldg Age 37:47-3 Mr '15
- Ohmmeter**
- Ohmmeter with several scales; abstract. H. A. W. Klinehamer. diag Elec W 65:37 Ja 2 '15
- Oil analysis**
- Iodine number of linseed and petroleum oils. W. H. Smith and J. B. Tuttle. U S Bur Stand Tech Pa 37:1-17 '14; Same. J Ind & Eng Chem 6:994-8 D '14
- Quantitative method for the determination of the adulteration in Chinese wood oil. J. C. Brier. J Ind & Eng Chem 7:953-7 N '15
- Oil as fuel.** See Petroleum as fuel
- Oil burners**
- Champion oil burner. diag Power 41:7 Ja 5 '15
- Detail of open hearth oil burner. R. A. Bull. diag Iron Tr R 57:626 S 30 '15
- Fuel oil for locomotives. G. M. Bean. diags Ry R 56:752-6 Je 5 '15; Same cond. Power 41: 900-1 Je 29 '15; Same cond. Ry Age (Mech ed) 89:280-1 Je '15; Same cond. Ry Age 58: 1115-16 My 28 '15; Same cond. Sci Am 113: 92 J1 31 '15
- Low-pressure oil burners at Steptoe. diags Eng & Min J 99:615 Ap 3 '15
- Low-pressure oil-burning metallurgical furnaces. II Met & Chem Eng 13:510-11 Ag '15
- Petroleum as fuel under boilers and in furnaces for heating, melting, and heat treatment of metals. W. N. Best. II diags Am Inst Min E Bul 104:1527-37 Ag '15; Discussion. 108:2420-2 D '15
- Pressure oil burners. H. A. Everett. II Int Marine Eng 20:314-15 J1 '15
- Rotary crude-oil burner. diag Power 41:815 Je 15 '15
- See also Acetylene burners
- Oil circuit breakers.** See Electric circuit breakers
- Oil coolers**
- S. & K. oil cooler. diag Power 41:564-5 Ap 27 '15
- Oil economizer**
- Emulsifying cylinder oil with steam. diags Power 42:745-6 N 30 '15
- Oil engines.** See Gas and oil engines
- Oil filters**
- Combination oil filter and oil refiner. II Elec W 68:264 J1 31 '15
- Cream separator used as an oil filter. A. J. Humphrey. II Mach 21:319 D '14
- New oil filter by Richardson-Phoenix co. II Iron Tr R 56:1170 Je 10 '15
- Oil filter and drier designed by the British Thomson-Houston company, of Rugby. Sci Am S 79:66 Ja 30 '15
- Peterson power-plant oil filter. diags Iron Age 95:838-9 Ap 15 '15; Am Gas Light J 102:284-5 My 3 '15; Power 41:606-7 My 4 '15; Ry Age (Mech ed) 89:253-4 My '15; Ind Eng 15:75-7 Ag '15; Sci Am S 80:245 O 16 '15
- Oil flow**
- Flow of oil fuel in pipes. Am Soc M E J 37:48 Ja '15
- Oil gas.** See Gas, Oil
- Oil handling**
- Storage and handling of gasoline in the garage. H. T. Wade. II Sci Am 112:12-13 Ja 2 '15
- Oil insulation.** See Insulation
- Oil lands**
- United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94: pt 2, 1043-52 '15
- Oil painting.** See Painting
- Oil pipe lines.** See Petroleum pipe lines
- Oil piping**
- Method of lifting oil for a gravity-feed system by use of condenser vacuum. A. Kuylenstierna. diags Elec W 66:1149 N 20 '15
- Tank ship construction. R. W. Morrell. Int Marine Eng 20:71-3 F '15
- Oil properties.** See Petroleum industry

- Oil purification**
Reubold electrolytic condensate purifier. diag Power 42:561 O 19 '15
- Oil reclaimers**
De La Vergne oil reclaimers. II diag Power 42: 336-7 S 7 '15; Iron Age 96:1103-4 N 4 '15
- Oil separators**
"Make it easy" specialties. II Power 42:649 N 9 '15
Oil separation from water of condensation; abstract. M. Vahle. diags Am Soc M E J 37: 645-6 Je '15
Oil separator failed to work. R. N. Robertson; R. McLaren. Power 41:452 Mr 30 '15
Reasons for an oil separator failing to work. T. W. Reynolds. diag Elec W 66:416 Ag 21 '15
Removing oil from feed water; the deolizer. II Am Gas Light J 103:237 O 11 '15
Why is an oil separator? R. H. Johnston. diags Horseless Age 36:297-3 S 15 '15
- Oil shales**
Bituminous shales of Colorado. G. R. DeBeque. II Eng & Min J 99:773-4 My 1 '15
- Oil ships.** See Tank ships
- Oil storage**
Concrete-lined oil storage reservoirs in California; construction methods and cost data; abstract. E. D. Cole. diag Eng & Contr 44: 408-9 N 24 '15
Fuel oil stations for extreme climatic conditions. plan Ry Age 58:475-6 Mr 12 '15
Oil-proof reservoirs of concrete. W. M. Kinney. Concrete Cem 6:251-2 My '15
Rebuilding a burned oil tank. C. P. Bowie. II Eng N 74:916-7 N 18 '15
Storage and handling of gasoline. Sci Am 112: 356 Ap 17 '15
Storage and handling of gasoline in the garage. H. T. Wade. II Sci Am 112:12-13 Ja 2 '15
- Oil switches.** See Electric switches
- Oil tanks.** See Oil storage
- Oil testing**
Analysis and valuation of motor fuels—14 methods for examining them; from German data. Automobile 33:205, 247-9 J 29-Ag 6 '15
Automobile lubrication. C. W. Stratford. II Sci Am S 79:392-3, 412-14 Je 19-26 '15; Same. Horseless Age 36:879-81; 36:16-19 Je 30-Jl 7 '15
Comparative exposure test of vehicles for paint. C. M. Chapman. Eng N 73:70-1 Ja 14 '15
Design of an absolute viscometer for engineering testing of oils. G. B. Upton. Sibley J 29:262-9 My '15
Device tests adhesiveness of California road oils. II Eng Rec 71:339 Mr 13 '15
Lubricating oil for Diesel engines and air compressors. H. Moore. Engineer 120:176 Ag 20 '15
Lubricating oil tests. R. C. Merchant. Colliery 35:615-4 Je '15
Physical qualities of castor oil. P. G. McVetty. Automobile 33:500-1 S 16 '15
Report on switch and transformer oils. W. P. Digby. Inst E E J 58:146-56 Ja 1 '15; Abstract. Elec W 65:345-6 F 6 '15
Road oil test for loss on heating needs revision. N. Chivvis. diags Eng Rec 72:570-1 N 6 '15
Testing lubricating oils. A. H. Gill. Power 41: 522-3 Ap 13 '15
Testing oils for flotation process; abstracts. J. Coutts. Met & Chem Eng 13:389-90 Je '15; Eng & Min J 99:1079-80 Je 19 '15
Theory of lubrication. L. Ubbelohde. Gen Elec R 18:1078-81 N '15
Value of clean bottles for sampling transformer oil. Elec W 66:589 S 11 '15
Von Kapff's oil testing machine; abstract. Am Soc M E J 37:412-13 J 1 '15
- Oil transportation.** See Tank cars; Tank ships
- Oil wells.** See Petroleum
- Oils, Essential.** See Essential oils
- Oils and fats**
British India. U S Sp Cons Rep 72:376-92 '15
Chemical and physical properties of oils distilled from the various parts of the plant *acorus calamus*. L. G. A. Russell. Am Chem Soc J 37:2387-94 O '15
- Composition of the seeds of *martyria Louisiana*. E. H. S. Bailey and W. S. Long. J Ind & Eng Chem 7:867-8 O '15
Cooking fats in South America. U S Sp Cons Rep 67:1-15 '15
Determination of unsaponifiable matter applicable to ether extracts, fats, oils and waxes. J. B. Rather. J Ind & Eng Chem 7:34-5 Ja '15
Effect of free fatty acids upon the flash and fire points of animal fats and oils. A. Lowenstein and J. J. Vollertsen. J Ind & Eng Chem 7:350 O '15
Eucalyptus oil industry of California. P. W. Tompkins. J Ind & Eng Chem 7:995-7 N '15
Hydrogenation of oils and soft fats. Sci Am S 80:99 Ag 14 '15
Investigations on the oil of eucalyptus globulus of California. C. E. Burke and C. C. Scallone. II J Ind & Eng Chem 7:206-9 Mr '15
Kambara earth and its bleaching action on oils. S. Ueno. diags J Ind & Eng Chem 7: 596-600 J 1 '15
Modern substitutes for butter. Sci Am S 80:27 J 10 '15
Oils of the coniferae. IV—The leaf and twig oils of digger pine, lodgepole pine, and red fir. A. W. Schorger. J Ind & Eng Chem 7:24-6 Ja '15
Paint vehicles as protective agents against corrosion; with discussion. M. Toch. II J Ind & Eng Chem 7:510-14 Je '15
Physical constants of gas oils and derived tars. W. F. Rittman and G. Egloff. J Ind & Eng Chem 7:481-4 Je '15
Rate of evaporation of ether from oils and its application in oil-ether colonic anesthesia. C. Baskerville. J Ind & Eng Chem 7: 563-70 O '15
Specific gravity—its determination for tars, oils and pitches. J. M. Weiss. II J Ind & Eng Chem 7:21-4 Ja '15
Unsaponifiable matter in greases. E. Twitchell. J Ind & Eng Chem 7:21-18 Mr '15
See also Butter fat; Cottonseed oil; Creosote; Essential oils; Linseed oil; Lubrication and lubricants; Oil analysis; Petroleum
- Okeechobee, Lake**
Lake Okeechobee water level. F. C. Elliot. Eng N 74:612-13 S 23 '15
- Oklahoma**
Industries and resources
Influence of the Cushing pool in the oil industry. R. H. Johnson and L. G. Huntley. Eng Soc W Pa 31:460-72; Discussion. 31:472-87 J 1 '15
See also Mines and mineral resources—Oklahoma
Oklahoma gas, electric & street railway association
4th annual convention, Oklahoma City, May 12-13. Elec Ry J 45:983-5 My 22 '15
4th annual convention, Oklahoma City, May 12-13. Elec W 66:1840 My 22 '15
- Oleoresin**
Oleoresin of sand pine. A. W. Schorger. J Ind & Eng Chem 7:321-2 Ap '15
- Omaha, Nebraska**
Water supply
Rebuilding the Omaha water-intake cribs. G. T. Prince. II diags Eng N 74:842-4 Ag 13 '15
- Omens**
Omens of war. Sci Am 113:3 J 18 '15
- Om nibuses, Electric.** See Electric buses
- Om nibuses, Motor.** See Motor buses
- Om nibuses, Steam.** See Motor buses, Steam
- Onnes, Heike Kamerlingh, 1853-**
Award of the Franklin medal. J Fr Inst 180: 107-11 J 1 '15
Dutch specialist in cold. por Sci Am 112:151-4 F 13 '15
- Ontario**
See also Mines and mineral resources—Ontario
Ontario municipal railway
1500-volt direct-current electrification of the Ontario municipal railway. G. H. Hill. Gen Elec R 18:10-11 Ja '15

Opelousas, Louisiana

Lighting

Opelousas' municipal lighting plant. A. C. Jones. *Il Power* 41:41-2 Ja 12 '15

Open and closed shops

Closed shop clauses in building contracts. W. Drew. *Am Ind* 15:11-12 Mr '15

Detroit's great growth due to its open shop policy. L. W. Moffett. *Iron Tr R* 57:143-7 JI 15 '15

Federal industrial relations commission report. W. Drew. *Am Ind* 15:15-17 Ja '15

Open hearth process

Air and steam as atomizing agents. R. A. Bull. *diags Iron Tr R* 57:626-9 S 30 '15; Same (Tests in atomizing fuel oil with steam and air). *Foundry* 43:424-7 O '15; Excerpts. *Iron Age* 96:1049-50 N 4 '15

Areagrams of open-hearth furnace flues. A. R. Mitchell. *Iron Age* 95:807-8 Mr 13 '15

Checker design for open hearths. W. A. Janssen. *Iron Tr R* 57:624-5 S 30 '15; Same. *Foundry* 43:413-15 O '15

New end construction for open-hearth furnaces. *diag Iron Age* 96:244 JI 29 '15

Open hearth versus the electric furnace in the manufacture of commercial steels. S. Cornell. *Met & Chem Eng* 13:630-1 S 15 '15

Waste-heat boilers in steel plants; abstracts. C. J. Bacon. *diags Iron Age* 95:1349-52 Je 17 '15; *Iron Tr R* 56:1123-4 Je 3 '15; *Power* 42:27-8 JI 6 '15

Open shop. See Open and closed shop

Opium

Early history of opium. *Sci Am S* 80:20 JI 10 '15

History of opium. D. I. Macht. *Sci Am S* 70:350-2 My 29 '15

See also Papaverine

Optical illusions

Seeing under water. *Il diags Sci Am S* 80:97+ Ag 14 '15

Optical instruments

See also Kaleidoscope; Lenses; Periscope; Stereoscopic telemeter; Telescopes

Optical rotation

Comparison of the optical rotatory powers of the alpha and beta forms of certain acetylated derivatives of glucose. C. S. Hudson and J. K. Dale. *Am Chem Soc J* 37:1264-70 My '15

Optical rotatory power and chemical constitution. L. G. Wesson. *Am Chem Soc J* 36:2522-32 D '14

Optics

Visibility. C. C. Paterson and B. P. Dudding. *Illum Engr* 8:210-16; Discussion. 8:216-26 My '15

See also Light

Optics, Physical

Absorption, reflection, and dispersion constants of quartz. W. W. Coblentz. *U S Bur Stand Bul* 11:471-81 My 10 '15

Optical properties of diffusing media. *Illum Eng Soc* 10:353-402 no 5 '15

Optophone

Mechanical eye bringing sight to the blind; a description of the crystal phonopticon. L. E. Dodd. *Il Sci Am* 113:138+ Ag 14 '15

Optophone and musical pitch. E. E. Hawley. *Sci Am* 111:523 D 26 '14

Phonoptikon and the optophone. E. E. Fournier d'Albe. *Sci Am* 113:467 N 27 '15

Type-reading optophone. E. E. Fournier d'Albe. *diag Sci Am S* 73:371 D 12 '14

Orcinolipthaleins

Orcinolipthaleins, the orcinotetrachlorophthaleins, and some of their derivatives. W. R. Orndorff and E. R. Allen. *Am Chem Soc J* 37:1301-58 My '15

Ore bins

Steel vs. timber ore bins. P. E. Barbour. *diags Eng & Min J* 99:195-6 Ja 23 '15

Ore chute. See Mine timbering

Ore cleaning. See Ore treatment

Ore deposits

Ancient sedimentary iron ores of British India. C. M. Weld. *maps Econ Geol* 10:435-52 JI '15

Certain mineral occurrences in the Worthington mine, Sudbury, Ontario, and their significance. T. L. Walker. *Il map Econ Geol* 10:536-42 S '15

Copper deposits in the Red Beds of southwestern Oklahoma. A. E. Fath. *Il Econ Geol* 10:140-50 F '15

Copper deposits of San Cristobal, Santo Domingo. J. F. Donnelly. *bibliog Il Am Inst Min E Bul* 104:1759-68 Ag '15; Discussion. 108:2473-4 D '15

Disseminated copper ores of Bingham Canyon, Utah. J. J. Beeson. *Il diags Am Inst Min E Bul* 107:2191-238 N '15

Economic geology. A. Knopf. *Eng & Min J* 99:102-4 Ja 9 '15

Experiments in the enrichment of silver ores. L. G. Ravicz. *Econ Geol* 10:363-89 Je '15

Formation and distribution of bog iron-ore deposits. C. L. Duke. *Am Inst Min E Bul* 103:1429-36 JI '15; *Eng & Min J* 100:74-5 JI 10 '15; Excerpts. *Iron Tr R* 57:488 S 9 '15; Discussion. *Am Inst Min E Bul* 108:2475-6 D '15

Formation of the oxidized ores of zinc from the sulphide. Y. T. Wang. *Il Am Inst Min E Bul* 105:1959-2012 S '15

Geological anatomy of a Tennessee zinc mine. F. L. Nason. *diags Eng & Min J* 100:259-62 Ag 14 '15

Geology and ore deposits of Red Cliff, Colorado. A. H. Means. *Il Econ Geol* 10:1-27 Ja '15

Geology of Juneau district. F. B. Hyder. *Eng & Min J* 99:901-2 My 22 '15

Geology of the iron-ore deposits in and near Daiquiri, Cuba. J. F. Kemp. *Il diags map Am Inst Min E Bul* 105:1801-36 S '15; Discussion. 108:2473 D '15

Geology of the ore deposits of the Tintic mining district. G. W. Crane. *Am Inst Min E Bul* 106:2147-60 O '15; Same cond. *Eng & Min J* 100:753-7 N 6 '15

Goldfield and its present boom. H. C. Cutler. *Il Eng & Min J* 99:221-4 Ja 30 '15

Iron deposits of Daiquiri, Cuba. W. Lindgren and C. P. Ross. *bibliog Il Am Inst Min E Bul* 106:2171-90 O '15

Is the Boulder batholith a laccolith? discussion of paper by A. C. Lawson. A. Knopf. *Econ Geol* 9:396-402 Je '14

Main mineral zone of the Santa Eulalia district, Chihuahua. B. Prescott. *diag map Am Inst Min E Bul* 98:155-98 F '15

Mayari iron-ore deposits, Cuba. J. F. Kemp. *Il diags Am Inst Min E Bul* 98:129-54; 103:1461-2 F, JI '15

Observations on contact metamorphic ore deposits. B. Prescott. *diags Econ Geol* 10:55-59 Ja '15

Ore bodies of the Mesabi range. J. F. Wolff. *Il map Eng & Min J* 100:39-94, 135-9, 173-85, 219-24 JI 17-Ag 7 '15

Ores of Gilpin county, Colorado. E. S. Bastin. *Il Econ Geol* 10:262-91 Ap '15

Origin of certain ore-deposits. J. E. Spurr. *Econ Geol* 10:101-22 F '15

Origin of certain ore-deposits. L. V. Pirsson. *Econ Geol* 10:130-6 F '15

Oriskany iron ores of Virginia. C. M. Weld. *maps Econ Geol* 10:399-421 JI '15

Pocket deposits of the Klamath mountains, California. H. G. Ferguson. *Il maps Econ Geol* 10:241-61 Ap '15

Problems in iron ore geology in Sweden and in America. F. Geijer. *Il Econ Geol* 10:299-329 Je '15

Processes of mineralization and enrichment in the Tintic mining district. W. Lindgren. 2 pls *Econ Geol* 10:225-40 Ap '15

Quartz veins in lamprophyre intrusions. J. F. McLennan. *Eng & Min J* 99:11-13 Ja 2 '15

Rate of reduction of acidity of descending waters by certain ore and gangue minerals and its bearing upon secondary sulphide enrichment. G. S. Nishihara. *Il Econ Geol* 9:743-57 D '14

Relation of ore deposits to different types of intrusive bodies in Utah. B. S. Butler. *map Econ Geol* 10:101-22 F '15

Ore deposits—Continued

Structure of the Cuyuna iron-ore district of Minnesota. C. A. Cheney, jr. map Eng & Min J 99:113-15 Je 26 '15

Temperatures that obtain in zones of chalcocitization. W. H. Emmons. Econ Geol 10:151-60 F '15

Zinc deposits of eastern Tennessee. F. L. Nason. Eng & Min J 99:734-6 Ap 24 '15

See also Boulder batholith; Copper ores; Geology; Iron ores; Jamesonite; Mines and mineral resources

Ore dressing. See Ore treatment

Ore handling

Application of electricity to the ore handling industry. C. D. Gilpin. diags Am Inst E E Pro 34:397-415 Mr '15; Abstract. Elec W 65: 996-7 Ap 17 '15; Discussion. Am Inst E E Pro 34:3063-7 D '15

Design, construction, operation and cost of a 2,594-ft. steel stocking trestle at the Negaunee mine, Negaunee, Mich. S. R. Elliott. II Eng & Contr 44:171-3 S 1 '15

Direct-current motors for coal and ore bridges. R. H. McLain. II Am Inst E E Pro 33:1009-20 Je '14; Discussion. 33:1887-8 D '14

Hamill belt-driven ore feeder. II Eng & Min J 100:805 N 13 '15

Influence of discharging appliances on the design of large ore carriers. J. Reid. diag Engineer 119:300-1 Mr 26 '15

New ore unloading plant at Huron. II Int Marine Eng 20:65-6 F '15

Ore unloaders at Philadelphia. II Iron Tr R 56:1008-10 My 20 '15

Permanent stockpile trestle of wood. O. Gustafson. II diags Eng & Min J 98:1003-4 D 5 '14

Simple holder for ore sacks. diag Eng & Min J 100:840 N 20 '15

Ore pulp

Barth slide rule for pulp measurement. C. G. Barth, jr. II Eng & Min J 100:228 Ag 7 '15

Filtration of slime. L. D. Mills. Met & Chem Eng 13:724 O 15 '15

New diaphragm pump. II Met & Chem Eng 13: 455-6 Jl '15

Note on the settling of slimes. A. J. Clark. Eng & Min J 99:412 F 27 '15

Pulp constants, with tables to facilitate tonnage calculations for pulps of all usual solution and dry slimes specific gravities. G. H. Clevenger, H. W. Young and T. N. Turner. Eng & Min J 98:1079-94 D 19 '14

Ore sampling

Bardill sampling machine. J. O. Bardill. II diag Eng & Min J 100:303-4 N 13 '15

Large-scale sampling. S. J. Jennings. Eng & Min J 98:1138 D 26 '14

Mechanical ore sampler. J. H. Taylor. diags Eng & Min J 100:239 Ag 7 '15

New method of making sieve tests. R. H. Bassett. Iron Tr R 57:230-1 Jl 29 '15

New sampling plant at Hamburg. II diags Eng & Min J 100:140-1 Jl 24 '15

Sample catcher for backs. A. L. Oke. II Eng & Min J 98:1096-7 D 19 '14

Sampling of churn-drill prospect holes. F. G. Moses. diags Eng & Min J 100:301-4 Ag 21 '15

Ore transportation

For a 40-cent iron-ore rate. Iron Age 95:194 Ja 21 '15

Influence of discharging appliances on the design of large ore carriers. J. Reid. diag Engineer 119:300-1 Mr 26 '15

Shipping ore by parcel post. Eng & Min J 100:348 Ag 28 '15

See also Motor trucks in ore haulage

Ore treatment

Broken Hill milling practice. Eng & Min J 100:151-3 Jl 24 '15

Chilean nitrate industry. M. R. Lamb. II Eng & Min J 99:311-15 My 8 '15

Chloridizing blast roasting and leaching. G. A. Kepp. II diag Eng & Min J 99:265-9, 315-22 F 6-13 '15

Chloridizing ores at Silver City, Utah. II diag Met & Chem Eng 12:757-9 D '14

Cleaning carbonate ores at Highland, Wis. W. F. Boericke. plan Eng & Min J 99:906-7 My 22 '15

Combined cyanide and other processes. H. A. Megraw. Eng & Min J 98:1007-9, 1127-9 D 5, 26 '14

Concentrating plant of the Moose Mountain. Ltd. E. B. Hood. II diag Eng & Min J 99: 973-6 Je 6 '15

Concentration by crushing and screening at the Vindicator consolidated mill. II Met & Chem Eng 13:142-3 Mr '15

Concentration by the Goltra process: beneficiation of brown iron ores by means of a current of hot air and properly located screens. W. B. Phillips. Iron Age 94:1148-50 N 12 '14; Abstract. Eng M 48:582-5 Ja '15

Concentrator of the Timber Butte milling co., Butte, Mont. T. Simons. diags map Am Inst Min E Bul 102:1295-1816 Je '15; Abstract. Met & Chem Eng 13:447-9 Jl '15

Development of ore concentration. H. A. Marvin. II Eng M 49:218-30 My '15

Electricity in an ore-treating plant. II Elec R & W Elec N 66:481-4 Mr 13 '15

Experiments on the flow of sand and water through spigots. R. H. Richards and B. Dudley, jr. diags Am Inst Min E-Bul 97:67-72 Ja '15; Same cond. Met & Chem Eng 13:130 F '15

Handling concentrates at the South Utah plant. T. H. Tulloch. diags Eng & Min J 99: 693-9 Ap 17 '15

Improvements at the reduction works of the Anaconda company. F. Laist. Eng & Min J 99:418-19 F 27 '15

Is there a complex-ore problem? W. Motherwell. Met & Chem Eng 13:3-9 Ja '15

Magnetic-concentration mill at Mt. Hope, N. J. S. Shapira. II diags Eng & Min J 99:559-65 Mr 27 '15

Mears-Willey tailings mill. W. C. Prosser. II Eng & Min J 99:607-8 Ap 3 '15

Metallurgical practice in the Porcupine district. N. Cunningham. Am Inst Min E Bul 99:601-8 Mr '15; Abstract. Met & Chem Eng 13:187-8 Mr '15; Discussion. Am Inst Min E Bul 101:1141-2 My '15

Metallurgical treatment of the low-grade and complex ores of Utah. D. A. Lyon, R. H. Bradford, S. S. Arentz, O. C. Ralston, and C. L. Larson. U S Bur Mines Tech Pa 90:1-39 '15

Method of treating carnotite ores. Eng & Min J 99:864 My 15 '15

Mining and milling of lead and zinc ores in the Wisconsin district, Wisconsin. C. A. Wright. II plan U S Bur Mines Tech Pa 95: 20-33 '15

Mining and reduction of quicksilver ore at the Oceanic mine, Cambria, Cal. C. A. Heberlein. diags Am Inst Min E Bul 98:497-504 F '15; Discussion. 101:1139-41 My '15

Notes on Homestake metallurgy; stamp milling; analysis of lost time; cost. A. J. Clark. II Am Inst Min E Bul 103:1381-1400 Jl '15; Abstract. Met & Chem Eng 13:764-6 O 15 '15; Discussion. Am Inst Min E Bul 103:2453-4 D '15

Ore dressing at Clausthal. E. M. Heriot. diags Eng & Min J 100:425-9 S 11 '15

Rotary kilns for desulphurization and agglomeration. S. E. Doak. Am Inst Min E Bul 105: 2061-6 S '15; Same. Iron Age 98:574-6 S 9 '15; Same. Iron Tr R 57:1178-9+ D 18 '15; Same cond. Eng & Min J 100:601-2 O 9 '15

Shaft-rockhouse practice in the copper country. L. H. Goodwin. II diags Eng & Min J 99:1061-6, 1107-10; 100:7-12, 53-7 Je 19-Jl 10 '15

Smelting methods at Magistral, Durango, Mex. R. W. Bissell. Sch Mines Q 36:22-9 N '14

Vogt process of recovering rare elements. Eng & Min J 100:106-7 Jl 17 '15

Wet ores in charcoal blast furnaces. R. H. Lee. Met & Chem Eng 13:882 D 1 '15

See also Concentrating tables; Copper metallurgy; Crushing; Crushing machinery; Cyanide process; Electrometallurgy; Electrostatic separation of ores; Filters and filtration (metallurgy); Flotation process; Gold milling; Hardinge mill; Hydrometallurgy; Magnetic separation of ores; Metallurgical patents; Metallurgical plants; Metallurgy; Smelting; Stamp mills; Tailings; Trent agitators; Tube milling

Ore treatment—Continued**Cost**

- Milling at the Tonopah Belmont plant. Eng & Min J 99:1083 Je 19 '15
 Milling costs at the Goldfield consolidated plant. Eng & Min J 99:1036-7 Je 13 '15
 Milling costs in Alaska. Eng & Min J 100:347 N 20 '15

Oregon

See also Mines and mineral resources—Oregon

Oregon society of engineers

- Report for the year 1914. O. E. Stanley. Assn Eng Soc J 54:123-6 Mr '15

Ores

See also Assaying; Iron ores; Metallurgy; Metals; Mines and mineral resources; Ore deposits; Ore treatment

Organic chemistry. See Chemistry, Organic**Organization in engineering**

- Organization for bridge work by day labor. St. Louis. Eng N 74:605 S 23 '15

See also Highway administration

Organization in industry

- Address to the British association engineering section. H. S. Hele-Shaw. Engineer 120:255-7 S 10 '15

Big Bill Agnew and blue Monday; true story, showing the relation of the engine house organization to engine failures. H. D. Wolcomb. Ry Age (Mech ed) 89:533-6 O '15

Central-station sales department organization and work. F. D. Beardslee. Elec R & W Elec'n 65:1073-9 D 5 '14

Human element. J. Hartness. Iron Age 94:1297 D 3 '14; Same. Metal Work 82:780 D 11 '14; Same. Am Gas Light J 102:17-18 Ja 11 '15; Same. Am Soc M E J 37:2-3 Ja '15

Human factors in engineering practice. J. Calder. Stevens Ind 82:193-206 J '15

Individual in modern management. F. B. Gilbreth and L. M. Gilbreth. Iron Age 96:802-4 O 7 '15

Organization at Delray. N. G. Reinicker. Power 42:343-4 S 7 '15

Railway repair shop organization. H. Gardner. Ry Age (Mech ed) 89:536-8 O '15

Scientific management for the factory of moderate size. D. T. Farnham. Eng M 50:46-51 O '15

Ultimate type of management. J. H. Van Deventer. Eng M 49:394-401 Je '15

See also Factory management; Office management; Railroads—Management; Scientific management

Oriental consolidated mining company, Chosen, Asia

- Oriental consolidated; report for year ended July 31, 1914. Eng & Min J 99:197 Ja 23 '15

Orientation

- Relation between spectral color and stimulation in the lower organisms. E. O. Mast. J Fr Inst 180:617-19 N '15

Ornament. See Decoration and ornament**Osage orange**

- Important constituents in the fruit of the osage orange. J. S. McHargue. J Ind & Eng Chem 7:612-13 J '15

Oscillators

- Electrical porcelain. I. Testing with a high-frequency oscillator. II. The problematical points of manufacture. III. Experiences and experimental investigations. E. E. F. Creighton. II Am Inst E E Pro 34:763-841 My '15; Discussion. 34:2622-45 N '15

High-frequency oscillator for porcelain-insulator testing. II diag Elec R & W Elec'n 66:880-1 My 3 '15; Elec W 66:1207 My 8 '15; Ry R 66:668 My 15 '15

Oscillating circuit-controller for railway signal circuits. II Elec R & W Elec'n 65:1193-4 D 19 '14

Production of damped oscillations. L. O. Heath. diag Gen Elec R 18:1110-17 D '15

See also Audion; Fessenden oscillator

Oscillograph

- Cathode ray tube and its application. M. E. Tressler. diag Gen Elec R 18:816-20 Ag '15

Investigation of dielectric losses with the cathode ray tube. J. P. Minton. II Am Inst E E Pro 34:1115-65 Je '15

Osters

- Basket willow culture. G. N. Lamb. II map U S Agric Farmers' Bul 622:1-34 '14

Osmosis

- Electrolytic endosmose. H. G. Byers and C. H. Walter. diag Am Chem Soc J 38:2284-91 N '14

Osmotic pressure

- Osmotic pressure and concentration in solutions of electrolytes, and the calculation of the degree of ionization. S. J. Bates. Am Chem Soc J 37:1421-45 Je '15

Ostend, Belgium**Sewerage**

- Sewage purifying plant at Ostend. Sci Am 112:50 Ja 9 '15

Otis & Clark, architects

- Examples of the work of Otis & Clark. H. Croly. II plans Arch Rec 37:385-409 My '15

Ottawa, Ontario**Water supply**

- Another water-supply project for Ottawa. J. A. Macdonald. Eng N 73:43 Ja 7 '15

Water filtration hold-up at Ottawa, Ont. Eng N 72:1167 D 10 '14

Outdoor life

- Forests and recreation. W. H. Miller. II Am For 21:543-9 Ap '15

Ovens. See Coke ovens; Electric ovens; Stoves

Overhead expense

- Apportioning indirect production expense. A. M. Burroughs. Metal Work 83:284-6, 316-18 F 19-26 '15

Appraisal of overhead costs. H. P. Gillette. Elec W 66:41-2 J '15

Cost of doing business. G. W. Hill. Dom Eng 71:306-7 Je 12 '15

Distributing overhead expense. N. T. Flicker. Eng M 49:553-9, 890-7, 862-71; 50:58-64, 254-61, 390-400 J '15

Doing business on low overhead expense; W. B. Perry electric company, of Brooklyn. Elec W 65:544-6 F 27 '15

Fair overhead charges allowed; Bronx gas and electric company. Elec Ry J 46:331 O 18 '15

Finding costs in the steel foundry. G. Muntz. Iron Tr R 57:482-4 S 9 '15

Merchant plumber's overhead expense. J. J. Foy. Metal Work 83:251-3 F 12 '15

Overburdening the overhead expense. H. Whitehead. Dom Eng 72:317-18 S 11 '15

Overhead charges in valuation. R. H. Tingley. Ry Age 58:1247-8 Je 11 '15

Overhead expense per man per hour. W. A. Fink; II. II. Pfliug-Felder. Dom Eng 71:335-6 Je 19 '15

Overhead expenses in the main works of the Westinghouse electric & manufacturing company. G. D. Piper. Elec Rty J 44:1839-40 D 19 '14

Relation between production and costs. H. L. Gantt. Am Soc M E J 37:466-8 Ag '15; Same. Am Gas Light J 103:54-5 J '15; Same. Iron Age 96:16-18 J '15; Same. Iron Tr R 57:287-8+ Ag 5 '15; Same. Mach 21:1000-2 Ag '15; Same. Textile World 49:510-13 Ag '15

Discussion. Am Soc M E J 37:468-75 Ag '15

Sheet metal contractor's overhead expense. Metal Work 83:825-6 Je 25 '15

Valuation of water works properties; the appraisal of overhead costs. H. P. Gillette. Eng & Contr 44:14-18 J '15

What constitutes overhead. E. H. Fish. Eng M 49:488-97 J '15

What is cost of material and labor? W. A. Fink. Dom Eng 72:105-6 J '15

Oxidase

- Retention of activity by urease and by oxidase after exposure to the temperature of liquid air. J. S. Hephurn and C. B. Bazzone. bibliog J Fr Inst 180:603-5 N '15

Oxidation

- Electrochemical oxidation of hydrazine sulfate and ammonium hydroxide. J. W. Turrentine and J. M. Olin. Am Chem Soc J 87:1114-22 My '15

Oxidation—Continued

Oxidation of sulfides with potassium iodate.
R. S. Dean. *Am Chem Soc J* 37:1134-7 My '15

Oxidation potential

Measurement of oxidation potentials at mercury electrodes: the stannic-stannous potential. G. S. Forbes and E. P. Bartlett. *Am Chem Soc J* 36:2030-40 O '14

Oxonium salts

Organic oxonium compounds: dimethylpyrone-hydrochloride. H. N. K. Rørdam. *Am Chem Soc J* 37:557-67 Mr '15

Oxyacetylene flame

Acetylene welding of gas pipe. G. H. Manlove. *Iron Tr R* 56:272-3 F 4 '15

Autogenous pipe welding. *Iron Age* 95:296-7 F 4 '15

Autogenous soldering or welding of aluminum. *Mach* 21:369-71 Ja '15

Cutting down a steel stack. *Power* 41:888 Je 29 '15

Cutting up a bridge with the oxyhydrogen torch. *Sci Am* 112:71 Ja 16 '15

Data on oxy-acetylene welding and cutting equipment. *Eng & Contr* 43:543-4 Je 16 '15

Dissolved and self-generated acetylene. M. K. Dunham. *Iron Age* 96:351-3 Ag 13 '15

Flashback in the welding torch. M. K. Dunham. *diag Mach* 22:50-1 S '15

Flashback in the welding torch. S. W. Miller. *Mach* 22:233-4 N '15

Gas-weld rail bonding. J. R. Brown. *Elec Ry J* 46:1087-9 N 27 '15

Gas welding for pipe lines. J. F. Springer. *Munic J* 38:254-6 F 25 '15

High temperature flames in metal working. H. R. Swartley, Jr. *Iron Age* 96:1123 N 11 '15

How time and money were saved by welding; oxy-acetylene process saved 13 days. *Foundry* 43:235 Je '15

Imperial oxy-acetylene equipment. *Foundry* 43:188 Ap '15; *Elec Ry J* 45:517 Mr 13 '15; *Ry Age* (Mech ed) 89:197 Ap '15

Oxy-acetylene process for boiler work; report of committee of Master boiler makers' association. *Ry Age* (Mech ed) 89:309-12 Je '15; Same cond. *Ry Age* 58:1165-6 Je 4 '15

Oxy-acetylene process of welding. H. Cave. *diag Am Soc M E J* 36:208-14 Je '14; Same cond. *Eng M* 47:750-3 Ag '14; Same cond. *Eng & Contr* 42:199-200 Ag 26 '14

Oxy-acetylene welding. A. H. Waychoff. *diag Sci Am S* 79:132 F 27 '15

Oxy-acetylene welding and cutting equipment. S. W. Miller. *diag Mach* 22:85-90 O '15

Oxyacetylene welding at Great Falls, Mont. *diag Eng & Min J* 99:534 Mr 20 '15

Oxy-acetylene welding eliminates joints in gas mains; with cost figures. *Eng Rec* 71:182 F 6 '15

Oxyacetylene welding in mining. *diag Eng & Min J* 99:393-7 F 27 '15

Oxyacetylene welding in pipe work. W. L. Rousche. *Power* 41:808-11 Je 15 '15

Oxy-acetylene welding; International railway general foremen's association discussion. *Ry Age* (Mech ed) 89:425-8 Ag '15; Same cond. *Ry Age* 59:187 Jl 23 '15

Pipe welding at Panama Pacific exposition. *Metal Work* 34:237-8 Ag 30 '15

Portable welding outfit for metallurgical works. *Metal & Chem Eng* 13:194 Mr '15

Practice of the oxy-acetylene welding process. S. W. Miller. *Mach* 22:106-17, 215-19 O-N '15

Safety in oxy-acetylene welding. *Eng M* 49:596 Jl '15

Strength of welds made by the acetylene process; abstracts. A. Campion and W. C. Gray. *Ind Eng* 14:415-16 O '14; *Am Soc M E J* 37:355 Je '15

Welding broken machine parts. *Power* 42:687-8 N 16 '15

Welding copper and copper alloys by acetylene methods. J. F. Springer. *Ry Age* (Mech ed) 89:367-9 Jl '15

Welding defective cores in paper mill by the Prest-O-Lite process. *Metal & Chem Eng* 13:770 O 15 '15

Welding the joints of steel gas mains. *Eng N* 73:233-4 F 4 '15

Why acetylene is the combustible gas used for autogenous welding. M. K. Dunham. *Mach* 21:1017-18 Ag '15

Oxy-acetylene generators

Safe and unsafe oxy-acetylene generators. A. C. Morrison. *Sci Am S* 79:371 Je 12 '15

Oxygen

Determination of gases dissolved in waters and effluents. A. A. Swanson and G. A. Hulett. *diag Am Chem Soc J* 82:490-500 N '15

Effect of oxygen on steel quality. J. A. Pickard and F. M. Potter. *Iron Tr R* 57:136-7+ Jl 15 '15

Electrolytic production of oxygen and hydrogen—typical plant. *Elec R & W Elec'n* 66:1170-1 Je 19 '15

Free energy of oxygen, hydrogen, and the oxides of hydrogen. G. N. Lewis and M. Randall. *Am Chem Soc J* 36:1969-93 O '14

Oxy-acetylene welding and cutting equipment; manufacture of oxygen. S. W. Miller. *diag Mach* 22:88-92 O '15

Plumbicon process for producing oxygen and nitrogen from atmospheric air; abstract. G. Kassner. *Am Soc M E J* 37:119 F '15

Possible applications of oxygen in metallurgy. J. E. Johnson, Jr. *Metal & Chem Eng* 13:483-4 Ag '15

See also Oxidation

Oxynitrilase

Enzymes: the synthetic and hydrolytic oxynitrilase. V. K. Kriebel. *Am Chem Soc J* 37:2205-13 S '15

Oysters

See also Pearl fisheries

Ozonitrilase

Enzymes: the synthetic and hydrolytic oxynitrilase. V. K. Kriebel. *Am Chem Soc J* 37:2205-13 S '15

Ozonators

Ozone apparatus as a business proposition. *Elec R & W Elec'n* 66:33-4 Ja 2 '15

Ozone

Air ozonation. M. W. Franklin. *J Ind & Eng Chem* 6:850-5 O '14; Same; with discussion. *Am Soc Heat & V E* 20:237-64 '14; Excerpts. *Heat & Ven* 11:28-34 O '14; *Metal Work* 33:723-3 My 21 '15

Experiment with ozone as an adjunct to artificial ventilation. A. M. Feldman. *Heat & Ven* 12:35-6 Mr '15

Formation of ozone in the upper atmosphere. J. N. Fring. *Sci Am S* 79:286-7, 303 My 1-8 '15

Ozone—an aid to factory ventilation. V. D. Greene. *diag Eng M* 49:517-25 Jl '15

Ozone and its applications. M. W. Franklin. *Am Soc Heat & V E* 19:128-40 '13

Ozone in ventilation. J. C. Olsen and W. H. Ulrich. *Sci Am S* 79:84-5 Ja 16 '15

Ozone treatment for drinking water. *Engineer* 120:371 O 15 '15

P**Pacific coast**

Panama canal and the ports of the Pacific. A. J. Quigley. *diag Eng M* 48:493-7, 641-57, 808-26; 49:1-17 Ja-Apr '15

Pacific coast claim agents' association

7th annual meeting, San Francisco, June 24-26; abstracts of papers. *Elec Ry J* 46:8-12 Jl 3 '15

Pacific electric railway

All-steel passenger cars for the Pacific electric railway. F. F. Small. *diag Elec Ry J* 46:488-92 S 18 '15

Businesslike methods in handling freight by electric railroads. J. McMillan. *diag Elec Ry J* 46:483-7 S 18 '15

Electric railway paradise. P. Shoup. *diag Elec Ry J* 46:475-80 S 18 '15

Operation of the Pacific electric railway. *diag Ry Age* 59:225-9 Ag 6 '15

Pacific gas & electric co.

Financial development and physical growth. *Elec W* 65:1689-70 Je 26 '15

Interconnected systems serving San Francisco; details of the generating equipments and transmitting circuits tied in with the larger

- Pacific gas & electric co.—Continued**
system of the Pacific gas & electric company, which covers half of California. *il* diag. map Elec W 65:1356-82 My 28 '15
9th annual report. Elec W 66:437-8 Ag 21 '15
Pacific gas & electric company valuation methods. Elec W 65:569-70 F 27 '15
- Pacific highway**
interstate bridge over the Columbia river, Portland, Ore. E. B. Howard. diag. Eng N 73:1218-21 Je 24 '15
Pacific highway interstate bridge over the Columbia river and its approaches between Vancouver, Wash., and Portland, Ore. E. B. Howard. diag. Eng & Contr 43:540-3 Je 18 '15
Special pier and floor design feature Pacific highway interstate bridge. diag. Eng Rec 72:18-20 Jl 3 '15
- Packing**
Buhne fibrous babbitt packing. *il* Power 42: 616 N 2 '15
Experiences in packing valves. Eng & Contr 43:523 Je 9 '15
Gland packing. diag. Elec W 65:416 F 13 '15
Metallic packing for valve stems. S. H. Farnsworth. diag. Power 41:643 My 11 '15
Metallic packing substituted for packing sleeve. E. W. Creed. diag. Power 42:334 S 14 '15
Sullivan piston and valve stem packing. *il* Ry Age (Mech ed) 89:596-7 N '15; Same. Ry Age 59:1019 N 26 '15
See also Packing rings
- Packing for shipment**
Packing for South America. Eng M 49:754-5 Ag '15
Packing of machinery, etc., for shipment abroad. H. T. Durant. Eng & Min J 99:205 Ja 23 '15
Time waste in handling malleable fittings; use of cardboard shipping cartons. W. J. Wooley. Metal Work 84:192-3 Ag 6 '15
- Packing house products**
Contributions of the chemist to the packing house products industry. A. Lowenstein. J Ind & Eng Chem 7:942-4 N '15
- Packing houses**
Electricity in packing plants. *il* Elec R & W Elec'n 66:145-8 Ja 23 '15
- Packing machine**
Electromagnetic nail packing machine. *il* Iron Age 95:900-1 Ap 22 '15
- Packing rings**
Chuck for finishing air pump packing rings. F. L. Stewart. diag. Ry Age (Mech ed) 89: 589 N '15
Piston valve packing rings. W. F. Lauer. diag. Ry Age (Mech ed) 89:583 N '15
- Pageants**
Lighting
Lighting the pageant of Lexington. L. C. Porter. *il* plan Elec W 66:209-10 Jl 24 '15
Page patent bill. See Patent laws
Painesville, Ohio
- Water supply**
Small waterworks revamped under service. G. W. Knight and R. F. MacDowell. plan Eng Rec 72:287-8 S 4 '15
- Paint**
Composition of paint vapors. C. A. Klein. J Ind & Eng Chem 7:99-102 F '15
Contributions of the chemist to the paint and varnish industry. M. Toch. J Ind & Eng Chem 7:988 N '15
Corrosion of iron. L. C. Wilson. Eng M 49: 58-66, 202-10 Ap-May '15
Data on prepared paints for metal surfaces. H. A. Gardner. Eng & Contr 44:346-7 N 3 '15
Doing without Europe. Sci Am 112:223 Mr 6 '15
Formula for paint for use with spraying machines. A. H. Sabin. *il* Eng N 73:40-1 Ja 7 '15
Insulation of underground piping. Elec R & W Elec'n 67:194 Jl 31 '15
Master car and locomotive painters' 46th convention. Ry Age 59:565-8 S 24 '15
Master painters' 46th annual meeting. Ry Age (Mech ed) 89:539-42 O '15
Mineral paints. J. M. Hill. Metal Work 84: 243 Ag 20 '15
Paint a product of science and civilization. G. B. Heckel. Met & Chem Eng 13:806-11 N 1 '15
Paint for engineering purposes. E. N. Percy. Power 41:234-5 F 16 '15
Paint protection of the Panama canal lock-gates. H. Goldmark. Eng N 72:1227 D 17 '14
Paint vehicles as protective agents against corrosion; with discussion. M. Toch. *il* J Ind & Eng Chem 7:510-14 Je '15
Painting defects; their causes and prevention. G. W. Thompson. *il* J Ind & Eng Chem 7:138-45 F '15; Excerpts. Ry Age 57:1138-41 D 18 '14; Excerpts. Eng N 73:876-8 My 6 '15
Paints for steel structures. Iron Tr R 56:1082-3 My 27 '15
Paints to prevent electrolysis in concrete structures. H. A. Gardner. *il* J Fr Inst 179: 313-36 Mr '15; Same. J Ind & Eng Chem 7:504-10 Je '15; Same cond. Iron Tr R 57: 139-40+ J 15 '15; Abstracts. Eng N 73:136-7 Ja 21 '15; Eng Rec 71:465-6 Ap 10 '15; Am Soc M E J 37:297 My '15; Concrete Cem 6:310 Je '15
Paints used in Havre de Grace bridge tests. Ry Age 59:87 Jl 9 '15
Paints which resist darkening by gases, soot, etc. H. A. Gardner. Eng N 73:407 F 25 '15; Same. Ind Eng 15:79-80 Ag '15
Prepared paints for metal surfaces. H. A. Gardner. Ry Age (Mech ed) 89:513-14 O '15; Same. Eng & Contr 44:346-7 N 3 '15
Preservative coatings for steel. Iron Age 96: 23 Jl 1 '15
Protection of iron and steel. J. W. Gibbons. *il* Ry Age (Mech ed) 89:580-1 N '15
Protection of iron and steel by paint films. A. Dubois. *il* Sci Am S 77:85-8 F 7 '14; Same abr. Sci Am S 79:160 Mr 6 '15
Reflection from painted surfaces. L. Bell. Elec W 65:211-13 Ja 23 '15; Same. Am Gas Light J 102:91 F 8 '15; Same cond. Ind Eng 15:30 Ag '15
Study of some curious painting phenomena. H. A. Gardner. *il* J Fr Inst 179:681-95 Je '15; Abstract. Am Soc M E J 37:418-17 Jl '15
Study of vapors from drying paint films. H. H. King. diag. J Ind & Eng Chem 7:502-4 Je '15
Tar paint proves better than lead paint on pipes. B. Dibble. Eng Rec 72:349-50 S 18 '15; Same. Eng N 74:973-4 N 18 '15; Same cond. Eng & Contr 44:181 S 8 '15
Washing paint charged to infected oil. Eng N 74:177 Jl 22 '15
See also Corrosion and anti-corrosives
- Testing**
Comparative exposure test of vehicles for paint. C. M. Chapman. Eng N 73:70-1 Ja 14 '15
Paint and dye testing; use of the white flame arc as a standard. W. R. Mott. Sci Am S 80: 350-2 N 27 '15
- Paint shops**
Piece work for the paint shop. H. Heffelfinger. Ry Age (Mech ed) 89:526 O '15
- Painting**
Artistic painting and the old masters. M. Toch. *il* J Fr Inst 179:47-58 Ja '15
See also Mural painting and decoration; Paint; Painting, Industrial
- Painting, Industrial**
Brushless paint shop. G. D. Babcock. *il* Iron Age 96:793-6 O 7 '15
Care and maintenance of gas holders. J. H. Braine. *il* Am Gas Inst Pro 9:pt 1, 807-22 '14; Same cond. Am Gas Light J 101:373-5 D 7 '14
Economical handling of maintenance of way painting. Ry Age 57:1134 D 18 '14
Electric equipment for painting without a brush. *il* Elec W 66:1050 N 6 '15
Hints on painting exterior woodwork. *il* Bldg Age 37:65-6 Jl '15
Maintenance of way master painters' convention. Ry Age 57:1137-41 D 18 '14
Maintenance of way master painters' 12th annual convention. Ry Age 59:668-9 N 18 '15

Painting, Industrial—Continued

Paint as an aid in making the public more friendly to the railroads. *E*: H. Brown. *Ry Age* 59:969 N 19 '15

Painting defects; their causes and prevention. G. W. Thompson. *II J Ind & Eng Chem* 7:126-45 F '15; Excerpts. *Ry Age* 57:1138-41 D 13 '14; Excerpts. *Eng N* 73:876-8 My 6 '15

Painting old brick walls. *Bldg Age* 37:24-5 My '15

Study of some curious painting phenomena. H. A. Gardner. *II J Fr Inst* 179:631-95 Je '15; Abstract. *Am Soc M E J* 37:416-17 JI '15

See also Car painting; Concrete—Painting; Painting, Structural

Painting, Structural

Economy of skilled mechanics. *E*: H. Brown. *Ry Age* 57:1141 D 13 '14

Paint required for structural work. *Eng & Min J* 100:801-2 N 13 '15

Paints for steel structures. *Iron Tr R* 56:1062-3 My 27 '15

Proper painting for steel work. *Iron Tr R* 55:1036-7 D 3 '14; Same cond. *Eng M* 48:758-60 F '15

Some paint and painting factors. H. Lowe. *Eng Rec* 71:428 Ap 3 '15

See also Automobiles—Painting; Car painting; Concrete—Painting

Paintings

Artistic painting and the old masters. M. Toch. *II J Fr Inst* 179:47-58 Ja '15

Paints. See Paint**Paleography. See Inscriptions****Palestine****Industries and resources**

Farming in Palestine. E. F. Beaumont. *II Sci Am* 113:162-3 Ag 21 '15

Railroads

See also Railroads—Palestine

Palimpsests

Fluorescent photographs of palimpsests. *Sci Am* 112:191 F 27 '15

Palisades

Making a road up the Palisades. *II plan Eng N* 74:998-1000 N 13 '15

Roadway up the Palisades. *II Munic J* 37:949-53 D 31 '14

Palladium

Determination of hydrogen in gas mixtures by means of colloidal palladium. G. A. Burrell and G. G. Oberfell. *J Ind & Eng Chem* 6:992-4 D '14

Determination of platinum, palladium and gold. A. M. Smoot. *Eng & Min J* 99:700-1 Ap 17 '15

Panama (city)**Streets**

Road and street work in the city of Panama. H: W. Durham. *II Good Roads* n s 10:144-6 S 4 '15

Water supply

Early municipal water works at Panama. C. E. Davis. *J Fr Inst* 180:561-6 N '15

Panama-California exposition. *See* San Diego, California—Panama-California exposition

Panama canal

Design features of the Gatun river bascule bridge. P. L. Kaufman. *plan Eng & Contr* 44:18-14 JI 7 '15

Electricity in the construction and operation of the Panama canal. E: Schildhauer. *II diags Gen Elec R* 18:sup679-780 JI '15

Gatun dam; paper presented at meeting of Am. Soc. C. E., May 18, 1904. C. D. Ward. *Sci Am S* 79:247 Ap 17 '15

Large coaling stations on the Panama canal. *II diag Eng N* 74:254-6 Ag 5 '15

Pontoon railroad bridge across the Panama canal. *diags Ry R* 58:82-4 Ja 16 '15

Pontoon swing-bridge over the Panama canal. *Eng N* 73:126 Ja 21 '15

Purchasing supplies for the Panama canal. F. C. Boggs. *Iron Age* 96:1180-2, 1226-7 N 18-25 '15

Swinging pontoon bridge carries railroad across Panama canal. *diags Eng Rec* 71:270-1 F 27 '15

Commercial aspects

Effects of the Panama canal on railway traffic. *Ry Age* 57:1111-12 D 13 '14

Manufacturer's interest in the Panama canal. J. E. Springer. *II Am Ind* 15:13-15 Mr '15

Panama canal and the ports of the Pacific. A. J. Quigley. *II maps Eng M* 48:493-7, 641-57, 808-26; 49:1-17 Ja-Apr '15

What Panama canal means to commerce and trade; abstract. E. R. Johnson. *Eng Rec* 72:889-90 S 25 '15; *Ry Age* 59:605-6 O 1 '15

Culebra cut

Daily survey at Culebra cut safeguards passing vessels. *Eng Rec* 71:91 Ja 13 '15

Nature as a canal builder. *Sci Am* 113:354 O 23 '15

See also Panama canal—Slides

Electric equipment

Electric towing at Panama. *II diag Elec Ry J* 45:235-7 Ja 30 '15

Electricity in the construction and operation of the Panama canal. E: Schildhauer. *II diags Gen Elec R* 18:sup679-780 JI '15

Mechanical and electrical features of the Panama canal. E: Schildhauer. *Elec R & W Elec'n* 66:397 F 27 '15

Towing locomotives for the Panama canal. C. W. Larson. *II diags Gen Elec R* 18:101-17 F '15; Same cond. *Eng N* 73:145-7 Ja 28 '15;

Ry Age 58:189-91 Ja 29 '15; *Elec R & W Elec'n* 66:187-91, 233-7 Ja 30-F 6 '15; *Elec W* 65:288-90 Ja 30 '15; *Eng Rec* 71:134-6 Ja 30 '15; *Ry R* 56:150-3 Ja 30 '15; *Sci Am S* 79:72-4 Ja 30 '15; *Eng M* 48:744-8 F '15; *Int Marine Eng* 20:161-2 Ap '15; *Engineer* 119:323-5 Ap 2 '15

Equipment

Coal handling at Panama. *II plans Power* 42:106-10 JI 27 '15; Abstract. *Eng M* 50:441-3 D '15

Experiences gained from reinforced-concrete barges built for the Panama canal. W. Rowland. *diags Eng Rec* 71:884-6 My 29 '15

Failure of Panama crane. Ajax. F. H. Cooke. *II diags Eng N* 73:918-23 My 13 '15; Abstract. *Eng M* 49:584-7 JI '15

Failure of the great German crane of the Panama canal. *Eng N* 73:947-8 My 13 '15

Panama crane contract. F. H. Cooke. *II diags Eng N* 73:913-17 My 13 '15

Locks

Construction details of the Panama canal lock gates; with discussion. R. A. Pendergrass. *II Eng Soc W Pa* 30:693-736 N '14

Lock entrance caisson for the Panama canal. L: A. Mason. *II diag plan Gen Elec R* 18:210-16 Mr '15; Same cond. *Eng N* 72:1099-1103 D 3 '14

Paint protection of the Panama canal lock-gates. H: Goldmark. *Eng N* 72:1227 D 17 '14

Maps

Great relief map of the Panama canal. *II Eng N* 73:337-8 F 13 '15

Model

Five-acre model of the Panama canal. *II Sci Am* 112:366-7 Ap 17 '15

Panama canal in miniature operates at exposition. *II Eng Rec* 71:434-5 Ap 3 '15

Working model of the Panama canal at the exposition. *Eng N* 73:338 F 13 '15

Slides

Dredging work on the Panama canal slides. W. G. Comber. *II maps Eng N* 73:753-7 Ap 22 '15

How the slides develop at Panama. *II Sci Am* 113:873 O 30 '15

Panama slides; report to the Secretary of war. G: W. Goethals. *II map Eng N* 74:1009-15 N 25 '15; Same. *Eng Rec* 72:852-6 N 27 '15

Problem of the slides at Culebra. *Sci Am* 112:152 F 13 '15

- Panama Canal Zone**
New faunal conditions in the Canal Zone. H. E. Anthony. *Il Sci Am* 8 79:104-6 F 13 '15
See also Panama canal
- Public buildings**
Manufacture of hollow concrete block in the Canal Zone—the administration building. *Il Concrete Cem* 6:176-80 Ap '15
- Sanitary affairs**
Aeration basin of the new water purification plant at Miraflores. G. M. Wells. *Eng & Contr* 42:489-90 N 13 '14
Early municipal water works at Panama. C. E. Davis. *J Fr Inst* 130:561-6 N '15
- Panama hats**
Your Panama hat; from the tropical jungles of South America to the American hat store. A. M. Jungmann. *Il Sci Am* 112:456-7 My 15 '15
- Panama-Pacific International exposition.** *See* San Francisco—Panama-Pacific International exposition
- Panama railroad**
Finances of Panama railroad. *Ry Age* 58:354-5 F 26 '15
Underground wires on the Panama railroad. *Il Ry Age* 58:451-3 Mr 12 '15
- Pan-American financial conference**
Washington conference; memorandum of Ecuador delegation. V. Gonzales. *Am Ind* 15:27-8 Jl '15
- Pan-American road congress**
Meeting at Oakland, Cal., Sept. 13-17. Good Roads n s 10:181-7 O 2 '15
Meeting at the Municipal auditorium, Oakland, Sept. 13-17. *Munic J* 39:515-16 S 30 '15
Pan-American road congress and the organizations under the auspices of which it will be held. Good Roads n s 10:147-53 S 4 '15
Preliminary plans and list of officers. *Munic Eng* 48:278 Ap '15
Proceedings at Oakland. *Eng Rec* 72:367-8, 397-8 S 18-25 '15
- Pan-American scientific congress**
Pan-Americanism. G. L. Swiggett. *Met & Chem Eng* 13:513-14 Ag '15
- Pan-American scientific congress, 2d**
Executive committee. *Eng & Min J* 100:790 N 13 '15
Program. *Am Inst Min E Bul* 108:xvii-xx D '15
2d congress to be held in Washington, D. C., Dec. 27, 1915, to Jan. 8, 1916; committees. *Eng & Min J* 99:622 Ap 3 '15
- Pancreas**
Digestive activity and composition of different fractions of the pancreas. J. H. Long, M. Hull, and H. V. Atkinson. *Am Chem Soc J* 37:2427-30 O '15
Reaction of the pancreas. J. H. Long and F. Fenger. *Am Chem Soc J* 37:2213-19 S '15
See also Digestive ferments
- Pancreatic amylase**
Comparison of certain properties of pancreatic and malt amylase preparations. H. C. Sherman and M. D. Schlesinger. *Am Chem Soc J* 37:1305-15 My '15
- Panel boxes**
Panel box for industrial plants. C. J. Whitfield. *diags Elec W* 86:73-4 Jl 10 '15
- Panics**
Panic economies and emergency problems with especial reference to the present industrial situation. F. A. Waldron. *Am Soc M E J* 36:413-17 D '14; Same cond. *Ind Eng* 14:397-400 O '14; Discussion. *Am Soc M E J* 36:417-19 D '14
See also Business depression
- Papaverine**
New color reaction for papaverine. L. E. Warren. *Am Chem Soc J* 37:2402-6 O '15
- Paper**
Diffusing media; papers and inks. *Ilum Eng Soc* 10:379-87 no 5 '15
Diffusing media; the optical properties of photographic papers. *Ilum Eng Soc* 10:388-98 no 5 '15
- New field for the printer; advertising on paper wrappers. T. H. Stark. *Inland Ptr* 56:45-7 O '15
Seventy years of inventions. *Sci Am* 112:517-18 Je 5 '15
Special paper for recording instruments, drawings and similar purposes. *Met & Chem Eng* 13:193 Mr '15
See also Photographic paper
- Testing**
From paper-mill to pressroom. W. B. Wheelwright. *Inland Ptr* 55:828-30 S '15
Testing the gloss of paper and other materials. *diag Ilum Engr* 8:425-7 O '15
- Paper, Photographic.** *See* Photographic paper
- Paper making and trade**
Contributions of the chemist to the pulp and paper industry. F. I. Moore. *J Ind & Eng Chem* 7:292-3 Ap '15
Electricity in manufacture of wood-pulp paper. *Il Elec R & W Elec'n* 67:223-6 Ag 7 '15
Electricity in paper making. W. B. Conant. *Il Elec R & W Elec'n* 66:371-5 F 27 '15
Evolution of the pulp and paper industry. T. J. Keenan. *Sci Am* 8 30:131 Ag 28 '15
From paper-mill to pressroom. W. B. Wheelwright. *Il Inland Ptr* 54:531-3, 655-6, 791-2; 55:81-3, 304-6, 377-8, 525-7, 681-2, 823-30; 56:93-5, 204 Ja-N '15
Long price-list. *Inland Ptr* 54:501-2 Ja '15
Paper and stationery trade of the world. G. Dawe. *U S Sp Cons Rep* 73:1-453 '15
Papermaking and its machinery. *Engineer* 120:309-10, 332-4, 358-61, 380-3, 403-5, 426-8 O 1-N 5 '15
Progress in chemical pulp industry; abstract. A. Klefn. *J Fr Inst* 179:507-8 Ap '15
Special prices on paper to printers. B. Hope. *Inland Ptr* 54:341-3 D '14
Sulphite-solution plant of reinforced concrete; four 99-foot towers 8.5 feet in diameter with a special tile lining. *Il Eng Rec* 70:610 D 5 '14
See also Paper mills
- Paper-making machinery**
Electricity in paper making. W. B. Conant. *Il Elec R & W Elec'n* 66:371-5 F 27 '15
Papermaking and its machinery. *Il diags Engineer* 120:332-4, 358-61, 380-3, 403-5, 426-8 O 8-N 5 '15
- Paper mills**
Electricity saves paper mill \$400 a month. *Il Elec W* 65:873 Mr 13 '15
Paper mill industry. W. L. Merrill. *Am Inst M E Pro* 34:3044-7 D '15
Paper mill power plants. W. Weaver. *Power* 42:340 S 7 '15
See also Paper making and trade
- Paper money**
Comfort for workers in Washington's government buildings. D. A. Willey. *Il Sci Am* 8 78:373-4 D 12 '14
- Paraguay**
Roosevelt-Rondon scientific expedition. L. E. Miller. *Il Sci Am* 8 79:248-9 Ap 17 '15
- Parallax**
Stars
Photographic determination of stellar parallaxes with the 60-inch reflector of Mount Wilson observatory. *Sci Am* 113:153 Ag 21 '15
- Parallel operation.** *See* Dynamosts
- Parcel post**
Efficiency in the post office department. *Ry Age* 57:1110-11 D 18 '14
Government view of government management. *Ry Age* 59:551-3 S 24 '15
Parcel post and its effects on railway revenues; abstracts. V. J. Bradley. *Ry Age* 57 1046 D 4 '14; *Eng M* 48:593-6 Ja '15
Shipping ore by parcel post. *Eng & Min J* 100:348 Ag 28 '15
See also Mail handling; Railway mail service
- Parenthetical clauses.** W. P. Root. *Inland Ptr* 55:477-3 Jl '15
- Paris**
Impressions of a member of the institute, now in Paris. C. Butler. *Am Inst Arch J* 3:495-6 N '15

Paris—Continued

Siege, 1870

Use of balloons during the siege of Paris; table and charts showing number of ascensions and results. *Sci Am S* 80:229 O 9 '15

Parks

Common sense labels on park trees. *J. J. Levison. Am For* 21:1062-3 N '15
Concrete park seats. *W. B. Conant. II diag Munic J* 38:592-3 Ap 29 '15
Jamestown's hundred acre lot. *S. W. Allen. II Am For* 21:567-70 Ap '15
Methods and costs of planting a small park to grass, making paths and planting hedge. *H. R. Ferriss. Eng & Contr* 43:320 Ap 7 '15
Park engineering. *W. T. Lyle. Munic J* 38:660-1 My 13 '15
Playground for a small city: Jones park, East St. Louis. *W. Webb. II Munic Eng* 47:424-6 D '14

See also Baseball parks; St. Louis—Park department; Zoological gardens

Parks, National. See National parks

Parlor cars

Steel parlor cars for Waterloo-Cedar Rapids line. *II plan Elec Ry J* 45:932-4 My 15 '15

Parrish museum. See Southampton, Long Island—Parrish museum

Parthenogenesis

Recent studies in the dynamics of living matter. *D. W. Thompson. Sci Am S* 80:301 N 6 '15

Partitions

Partitions of translucent pressed-glass units. *II Eng N* 72:1269 D 24 '14

Partnership

Is a profit sharer always a partner? *E. J. Buckley. Metal Work* 82:803 D 18 '14

Legal principles governing the determination of partnership assets. *C. R. Cross. J Account* 19:97-106 F '15

Partnership liquidation. *S. Walton. J Account* 19:146-3 F '15

Partnership settlements. *S. Walton. J Account* 20:236-3 S '15

Powers and liabilities of partners. *Dom Eng* 71:154 My 8 '15

See also Commercial law

Pasadena, California

Lighting

Municipal operation in Pasadena, Cal.; analysis and review of annual reports. *Elec W* 65:1171-3 My 8 '15

Pascal, Jean Louis

Institute gold medalist, 1913. *W. Cook. II por Am Inst Arch J* 8:19-26 Ja '15

Passaic, New Jersey

Sanitary affairs

Collecting ashes and garbage in Passaic. *A. Reid. Munic J* 38:35-6 Ja 14 '15

Passaic valley sewer

Constructing Passaic valley pumping station. *II plan Munic J* 38:341-44 Mr 18 '15

Constructing Passaic valley sewer. *II plan diag Munic J* 38:213-17 F 18 '15

Constructing pumping station in unbraced cofferdam formed by outside walls. *II plans Eng Rec* 71:292-4 Mr 6 '15

Construction features on the Passaic valley sewer. *II diag Munic J* 38:59-62 Ja 21 '15

Tunnel driving record on Passaic valley sewer. *Munic J* 38:506 Ap 15 '15

Passermenterie

Passermenterie mill. plans *Textile World* 48:445-7 Ja '15

Passenger fares. See Railroads—Fares

Passenger traffic officers, American association of. See American association of passenger traffic officers

Passivity

Passivity of metals. *H. G. Byers and S. C. Langdon. diag Am Chem Soc J* 86:2004-11 O '14

Phenomenon of passivity in connection with ferrous alloys of different composition and structure. *H. W. Moseley. Am Chem Soc J* 37:2326-33 O '15

Patent laws and legislation

Application for and prosecution of applications for United States letters patent. *S. C. Mastick. J Ind & Eng Chem* 7:874-82 O '15

Big handicap to industry. *L. W. Moffett. Iron Tr R* 56:557-60 Mr 18 '15

Contractual rights relating to letters patent; Actions for infringements. *S. C. Mastick. J Ind & Eng Chem* 7:984-91 N '15

Court of appeals decision in the pyrophoric alloy suit. *Met & Chem Eng* 13:145-6 Mr '15

Court rules on validity of foundation patent. *Eng Rec* 71:154-5 Ja 30 '15

Decision in the United shoe machinery case. *Sci Am* 112:322+ Ap 3 '15

Hearing of the proposed amendment of the patent laws. *L. H. Baekeland and others. Met & Chem Eng* 13:76-81 F '15

Hearing on the Paige patent bill. *Textile World* 48:168-75 F '15

Major and minor patents proposed. *S. E. Hitt. Iron Tr R* 56:723 Ap 8 '15

Patent legislation. *C. D. Paige. Textile World* 49:202-5 My '15

Patents and the courts. *A. B. See. Am Ind* 15:32-3 Jl '15

Patents involved in shoe machinery decision. *Elec W* 65:825-6 Mr 27 '15

Theory and statement of the law relating to patents generally and to patents for compositions of matter and chemical processes specifically. *S. C. Mastick. J Ind & Eng Chem* 7:789-97 S '15

Times of priority in Germany and France. *Sci Am* 113:4 Jl 3 '15

Use of patented articles: court decisions in the several states as to conditions under which cities may contract for patented pavements and other articles. *J. Simpson. Munic J* 38:13-15 Ja 7 '15

Use of patented pavements by cities. *Eng N* 73:507 Mr 11 '15; Same. *Sci Am* 112:323+ Ap 3 '15

Compulsory working

Coal-tar dyes and the Paige bill; compulsory working of patents. *B. C. Hesse. J Ind & Eng Chem* 7:963-74; Discussion. *H. E. Stonebraker; B. C. Hesse. J Ind & Eng Chem* 7:974-8 N '15

Commissioner of patents on compulsory licenses. *T. Ewing. Sci Am* 112:248 Mr 13 '15

Compulsory licenses. *Sci Am* 112:331 Ap 24 '15

Compulsory licenses and working clause. *Sci Am* 112:591 Je 12 '15

Compulsory working of patents. *S. S. Dale. Sci Am* 113:199 S 4 '15

Compulsory working of patents in the United States, Germany and Great Britain. *B. C. Hesse. J Ind & Eng Chem* 7:304-7 Ap '15; Same. *Sci Am S* 80:94-5 Ag 7 '15

Symposium on compulsory working of patents and designs in England. *J Ind & Eng Chem* 7:307-17 Ap '15; Same cond. *Sci Am S* 80:95-6 Ag 7 '15

Working clause in the patent law. *Textile World* 49:170-1 My '15

Patent lawyers

Word about coupon attorneys or those of the "no patent no pay" variety. *Sci Am* 113:431 N 13 '15

Patent office. See United States—Patent office

Patents

Danger of throwing inventions open to the public. *H. D. Hibbard. Met & Chem Eng* 13:206 Ap '15

Donation of patents to the public. *Sci Am* 112:433 My 8 '15

How shall patented materials or processes on public works be handled? *D. B. Luten; S. Whinery. Eng Rec* 72:546-9 O 30 '15

How shall patented materials or processes on public works be handled? *G. C. Warren; S. Whinery. Eng Rec* 72:511-12 O 23 '15

How to proceed in obtaining a patent. *S. Roth. Metal Work* 84:501-4 O 15 '15

Inventors too cautious. *Sci Am* 113:106 Ag 7 '15

Needed changes in the patent system. *Met & Chem Eng* 13:468-9 Ag '15

Patents—Continued

- Patents and foreign competition; by a British chartered patent agent. *Engineer* 119:106-7 Ja 29 '15; Discussion. 119:168, 182, 206, 226 F 12-Mr 6 '15
- Patents and their purpose; notes of historic interest. J. L. Macauliffe. *Sci Am S* 79:364-5 Je 5 '15
- Proposed patent reform. *Eng & Min J* 100:531-2 S 25 '15
- Public recognition of patents. G. C. Warren. *Munic Eng* 48:172-7 Mr '15
- Railroad supply co. wins its case against infringers of the Wolhaupter patents. *Il Ry R* 58:60-6 Ja 9 '15
- Report of the commissioner of patents. *Sci Am* 112:205+ F 27 '15
- Rights of joint owners of patents. *Sci Am* 113:238 S 11 '15
- State should deal directly with patentees of processes and materials in public work. S. Whinery. *Eng Rec* 72:73-4 JI 17 '15
- Suggestion in patent reform. *Sci Am* 112:414 My 1 '15
- Why is the patent mania? W. E. Greenawalt. *Eng & Min J* 99:543-4, 1040-1 Mr 20, Je 12 '15
- Why is the patent mania, or why is the patent office? S. Croasdale. *Eng & Min J* 99:250-1, 744-5 Ja 30, Ap 24 '15
- See also Automobiles—Patents; Chemical patents; Inventions; Metallurgical patents; Patent laws and legislation; Patent lawyers; Pavements—Patents; Trademarks; United States—Patent office
- Patents, Compulsory working of. See Patent laws and legislation—Compulsory working
- Pathological psychology. See Psychology, Pathological
- Patriotism
- Random reflections. *Sci Am* 112:326+ Ap 3 '15
- Pattern making
- Chords of angles from one to ninety degrees. S. L. Cook. *Foundry* 43:416a O '15
- Inexpensive base plate pattern. S. B. Phelps. *diags Foundry* 43:466+ N '15
- Lengths of chords for segments of different circles. S. L. Cook. *Foundry* 43:322a Ag '15
- Making a herringbone grate pattern. E. L. Scillitoe. *diags Foundry* 43:184 My '15
- Outside diameters for polygons. S. L. Cook. *Foundry* 43:464a N '15
- Patternmaker's table for rounding corners and other useful tables. S. L. Cook. *Foundry* 43:182a My '15
- Patternmaking for molding machine work. E. L. Chase. *Iron Age* 96:932-3 O 21 '15
- Reducing the cost of foundry patterns. D. Gordon. *Il diags Iron Age* 95:1277-9 Je 10 '15
- See also Foundry practice; Sheet metal work—Pattern making
- Pattern storage
- Miscellaneous stands for use in the foundry. A. Hill. *diags Foundry* 43:301-3 Ag '15
- Pattern storage systems for factories. J. G. Shirley. *Iron Age* 96:304-6 Ag 5 '15
- Place for pattern plates. F. West. *Il Foundry* 43:303 Ag '15
- Pavements
- Advantages and disadvantages of the single gutter pavement. W. G. Kirchoffer. *Eng & Contr* 44:190-1 S 8 '15
- American society of municipal improvements convention, Dayton, Ohio. *Eng N* 74:810-12 O 21 '15
- Appellate court of the state of New York and the question of allowances for paving over mains in valuation work. J. W. Alvord. *Am Water Works Assn J* 2:465-81 S '15; Same cond. *Eng & Contr* 43:533-5 Je 16 '15; Discussion. *Am Water Works Assn J* 2:482-92 S '15
- Baltimore experience in paving street-railway tracks. H. D. Williar, jr. *Il diags Eng N* 73:884-5 My 6 '15
- Comparative study of pavements based on Chicago conditions. *Eng & Contr* 43:432-3 My 12 '15
- Comparison of European and American pavements. *Eng & Contr* 43:432-3 My 12 '15
- Cost keeping system for work performed by municipal forces of the Philadelphia bureau of highways. *Eng & Contr* 43:292-4 Mr 31 '15; Same cond. *Eng Rec* 71:360-1 Mr 20 '15
- Current paving practice. *Munic J* 38:626 My 6 '15
- Discussion on paving. *Elec Ry J* 45:184-5 Ja 16 '15
- Engineering work preliminary to pavement construction. plans *Eng N* 74:460-1 S 2 '15
- Examination of Akron pavements. *Munic J* 37:954-5 D 31 '14
- Five years' satisfactory experience with a gravel and oil mixed pavement, Concord, Mass. J. M. Keyes. *Eng N* 73:83-4 Ja 14 '15
- General observations on street pavements of European cities. H. W. Durham. *Sch Mines Q* 36:68-78 N '14
- Highway work in New York. *Munic J* 39:689-90 N 4 '15
- Iron sides for roads. *Il Sci Am* 112:254 Mr 13 '15
- Manhattan pavements limited to three standard types. H. W. Durham. *Eng Rec* 71:202-3 F 13 '15
- One cause of the inferiority of city pavements in America. L. S. Smith. *Good Roads n* 9:109 Mr 6 '15
- Pavement problems and experience in San Francisco. J. M. Owens. *Il Eng N* 72:1180-2 D 10 '14
- Pavement problems; contrasts of foreign and American practice. H. W. Durham. *Eng N* 72:1182-3 D 10 '14
- Pavements dished in the center. E. McCullough. *Eng Rec* 71:691 My 29 '15
- Paving a leading factor in city betterment; abstracts of papers by C. D. Pollock and others. *Eng Rec* 72:475-6 O 16 '15
- Paving for piers, warehouses and garages. plan *Eng N* 73:952-4 My 13 '15
- Paving methods in Baltimore, Maryland. H. D. Williar, jr. *Il Eng & Contr* 42:344-6 O 7 '14
- Paving of streets. H. J. Fixmer. *Assn Eng Soc J* 55:19-31 JI '15
- Paving procedure in American cities. *Eng & Contr* 42:569 D 16 '14
- Philadelphia highway work; use of granite block in street railway tracks and wood block near schools and hospitals. *Il Munic J* 38:619-22 My 6 '15
- Practice in paving street-railway tracks. *Il diags Eng N* 73:888 My 6 '15
- Proper rolling of plastic pavements. E. Wright. *Good Roads n* 10:248 N 6 '15
- Road and pavement dimensions—widths, depths and crown; with discussion. L. White. *Good Roads n* 9:8-14 Ja 2 '15
- Road and street work in the city of Panama. H. W. Durham. *Il Good Roads n* 10:144-6 S 4 '15
- San Francisco, the exposition city. *Il Good Roads n* 10:133-9 S 4 '15
- Selection of paving material. G. W. Tillson. *Munic J* 38:3-7 Ja 7 '15; Same abr. (Relative values of paving materials). *Eng & Contr* 42:442-4 N 4 '14
- Standard practice in the construction of block pavements. *Good Roads n* 10:78 Ag 7 '15
- Street pavements. C. Hill. *Good Roads n* 10:205-6 O 3 '15
- Street pavements, roads and boulevards. A. J. Cleary. *Il Eng N* 73:311-13 F 18 '15
- Street paving in Lynn, Mass. H. T. Rich. *Il Munic J* 38:383-4 Mr 4 '15
- Street paving in small cities. T. H. MacDonald. *Good Roads n* 9:73-5 F 6 '15; Excerpts. *Munic J* 37:960 D 31 '14
- Street paving units. *Munic J* 38:132 F 4 '15
- Traffic census and its bearing on the selector of pavements. W. W. Crosby. *Good Roads n* 10:265-6 N 6 '15
- Traffic limits of various types of pavements. W. D. Washington. *Eng & Contr* 42:403-4 O 28 '14
- Trenton's 1914 paving work. H. F. Harris. *Il Munic J* 38:279-80 Mr 4 '15
- Use of patented pavements by cities. *Eng N* 73:507 Mr 11 '15; Same. *Sci Am* 112:323+ A1 2 '15

Pavements—Continued

Value of paving materials disclosed by two years' service test in New York. H. W. Durham. Eng Rec 71:203-4 F 13 '15

See also Asphalt; Bridges—Floors; Concrete; Curbs; Gutters; Paving machinery; Roads; Roads, Macadamized; Sidewalks; Street openings; Streets

Cost

Asphalt paving in Columbia; determination of cost by force account. J. McNeal. II Munic J 39:539-41 O 7 '15

Asphaltic and bitulithic pavements. R. S. Dulin; R. G. McMullen. Assn Eng Soc J 55: 67-79 S '15; Abstract. Am Soc M E J 37:657 N '15; Discussion. Assn Eng Soc J 55:79-94 S '15

Construction details and costs. Munic J 38: 133-5; tables 144-52, 188-9 F 4-11 '15

Cost of asphaltic concrete pavement with small portable mixer. diag Eng N 73:1037-8 My 27 '15

Cost of brick pavements. V. M. Pierce and C. H. Moorefield. Eng & Contr 44:132-3 Ag 18 '15

Cost of construction and repair of pavements in Philadelphia in 1913; tables. W. H. Connell. Eng & Contr 42:361 O 14 '14

Cost of paving with asphaltic concrete on old macadam. Eng & Contr 44:369 N 10 '15

Costs of brick pavement and of concrete base at Gary, Ind. W. F. Cottingham. Eng & Contr 44:38-9 Ag 4 '15

Experience in paving by day labor at Duluth, Minn. J. Wilson. Eng & Contr 43:445 My 19 '15

Paving by day labor receives trial in Duluth. Eng Rec 71:333-4 Mr 13 '15

Relative 20-year economy of various types of roads and pavements. R. Trauttschold. Eng & Contr 44:89-91 Ag 4 '15

Statistics on paving in cities of the United States; tabulation. Good Roads n s 10:21-40 J1 3 '15

See also Pavements—Maintenance and repair; Pavements, Concrete—Cost

Crowns

Diagram for determining pavement crowns. C. W. Barber. Eng N 74:509-10 S 9 '15

Pavement widths and crowns. H. J. Fixmer. diag Good Roads n s 9:230-1 Je 5 '15; Correction. 10:16 J1 8 '15

Paving crown best distribution by hyperbolic curve. C. R. Mandigo. Eng Rec 72:549-50 O 30 '15

Cutting

Pavement roter drawn by street cars tears up brick streets. II Eng Rec 72:117 J1 24 '15

Tearing up pavement at 500 ft. per minute. II Elec Ry J 46:73 J1 10 '15

Expansion joints

Expansion joints in granite-block pavements. II Eng N 74:398-9 Ag 26 '15

Lugs or spacers to prevent expansion failures in wood-block pavements. F. W. Cherrington. Eng N 73:375-6 F 11 '15

1915 practice of prominent builders of concrete roads. Concrete Cem 7:39 J1 '15

Perishable dividing plate for expansion joints in concrete. Munic Eng 43:324-4 My '15

Road joint protector. II Concrete Cem 7:193 N '15

Wood-block expansion joint for concrete alloy pavements. diag Eng Rec 70:702 D 26 '14

Experiments

See Pavements, Experimental

Failures

Surface warnings of street subsurface failures. R. Klotz. Eng N 74:831 O 28 '15

Fillers

Bituminous filler for granite block in Brooklyn. H. H. Schmidt. Eng Rec 71:297-8 Mr 6 '15

Joint fillers for granite block pavements. C. D. Pollock. Munic J 39:777-8 N 18 '15; Excerpts. Good Roads n s 10:264 N 6 '15; Excerpts. Eng Rec 72:475 O 16 '15

Pavements with pitch filler. II Munic J 38: 160-2 F 4 '15

Foundations

Adaptability and cost of concrete and macadam pavement bases in Oakland, California. W. H. Frickstad. Eng & Contr 42: 461 N 11 '14

Brick monolithic construction of county highways. R. L. Bell. II Eng & Contr 44:268-70 O 6 '15; Same cond. (Illinois finds new mortar bed an improvement) Eng Rec 72:453-4 O 9 '15

Brick road built monolithic at Paris, Ill. W. T. Blackburn. II Eng Rec 72:54-5 J1 10 '15

Brick road construction upon a sand base in Hillsborough county, Florida. II Eng & Contr 44:353-6 O 27 '15

Cement-sand bed best for wood-block paving. C. R. Mandigo. Eng Rec 71:647-8 My 22 '15

Cracking of brick pavements is prevented by a mortar cushion. M. Schuyler. Eng Rec 72: 175-6 Ag 7 '15

Cushions for brick pavements. W. C. Perkins. Munic J 39:856-6 O 28 '15; Same. Eng & Contr 44:336 O 27 '15

Dry sand and cement mixture vs. mortar bed for wood block pavements. T. S. Oxholm. Eng N 73:217 F 4 '15; Same. Munic J 38: 777 Je 3 '15

Mortar beds for brick and stone pavements. Eng N 74:163. 273, 517-19 J1 22, Ag 5, S 9 '15

Ohio uses cement-sand support for brick pavement. D. Moomaw. Eng Rec 72:455 O 9 '15

Pavement foundations over filled-in trenches. G. H. Fenkell; C. R. Mandigo. diag Eng N 74:228 J1 29 '15

Rigid bed eliminates noise and subsurface pockets. F. A. Churchill. Eng Rec 72:455-6 O 9 '15

Road foundations. J. A. Johnston. Eng Rec 70:663-4 D 19 '14

Sand-cement and mortar beds for paving—a difference. S. Whinery. Eng N 74:995 N 18 '15

Sand versus motor beds for brick pavements. W. P. Blair. Eng N 74:903 N 4 '15

Thin concrete base, reinforced, for pavements. C. S. Pope; J. I. Tucker. Eng Rec 72:174-5 Ag 7 '15

Thin concrete base, reinforced, may save 50 cents a square yard in paving costs. J. S. Tucker. Eng Rec 71:719-20 Je 5 '15

Vitrified brick construction—streets and roads. W. C. Perkins. Eng Rec 72:476 O 16 '15

Laws and regulations

Ordinances regulating street excavating—replacement by city. Munic Eng 43:116-18 F '15

Practice relating to patented pavements in American municipalities. M. T. Calef. Eng & Contr 44:103-8 Ag 11 '15

Regulating street excavations; digest of ordinances of eight cities. A. L. Bostwick. Munic J 38:231-2 Mr 4 '15

Maintenance and repair

Cost of pavement maintenance in Oakland, Cal. Munic J 39:4-5 J1 1 '15

Economic limit of pavement repairs. G. E. Norton. Eng & Contr 43:277-8 Mr 24 '15; Same. Munic J 39:1-3 J1 1 '15

Economics of pavement repairing. G. H. Norton. Eng & Contr 44:167-8 S 1 '15

Legality of the Chicago wheel tax. Eng & Contr 43:438-9 My 19 '15

Repairing and resurfacing bituminous pavements. S. H. Lea. II Eng N 72:1308-10; 73: 258-9 D 31 '14, F 11 '15

Street repair in Cleveland, Ohio; with cost tables. P. J. Masterson and others. II Munic Eng 49:174-8 N '15

See also Pavements, Asphalt—Maintenance and repair; Pavements, Concrete—Maintenance and repair

Patents

Canadian bitulithic patents adjudged valid by the supreme court of Alberta. Good Roads n s 9:166-8 Ap 10 '15

Canadian bitulithic patents sustained. Munic Eng 48:277-8 Ap '15

Pavements—Patents—Continued

- Hassam Bi-co-mac pavement. *Il* Good Roads n s 10:271-2 N 6 '15
 How shall patented materials or processes on public works be handled? G: C. Warren; S. Whinery. *Eng Rec* 72:511-12 O 23 '15
 Practice relating to patented pavements in American municipalities. M. T. Calef. *Eng & Contr* 44:108-8 Ag 11 '15
 State should deal directly with patentees of processes and materials in public work. S. Whinery. *Eng Rec* 72:73-4 J1 17 '15
 Use of patented articles: court decisions in the several states as to conditions under which cities may contract for patented pavements and other articles. J. Simpson. *Munic J* 38:13-15 Ja 7 '15

Repair**See Pavements—Maintenance and repair****Specifications**

- Closed, open or alternate paving specifications? D. T. Pierce. *Munic Eng* 48:300-1 My '15
 Illinois specifications for concrete and brick pavements. *Munic Eng* 48:309-10 My '15

Statistics

- Paving statistics of American cities. *Munic J* 38:135-59 F 4 '15
 Statistics of pavement construction in 1914 in United States and Canada. *Eng & Contr* 43: sup38-49 Ap 7 '15
 Statistics on paving in cities of the United States; tabulation. *Good Roads n s* 10:21-54 J1 3 '15
 Street and sidewalk improvement in the United States and Canada. *Munic Eng* 48:313-58 Je '15
 Street pavements, 1915. *Munic Eng* 48:252-6 Ap '15

Surface treatment

- Maintaining macadam streets in Kansas City. C. R. Mandigo. *Eng Rec* 70:611-2 D 12 '14
 Methods and cost of laying asphaltic wearing surface on concrete pavement, Santa Barbara county, California. W. C. Howe. *Il Eng & Contr* 44:131-3 Ag 18 '15
 Methods and cost of resurfacing asphalt pavements in Brooklyn by the surface heater method. J. C. Huseman. *Il Eng & Contr* 42: 483-5 N 18 '14
 Resurfacing old macadam with bituminous concrete in Chicago. *Il diag Eng & Contr* 42:357-8 O 14 '14

See also Pavements, Bituminous; Roads, Bituminous; Roads, Oiled

Terminology**See Roads—Terminology****Testing**

- Smoothness-testing machine for pavements. *Il Eng N* 74:751-2 O 14 '15
 Tests of smoothness made on various pavements. R. D. Kneale. *Eng N* 74:784 O 21 '15
Pavements, Asphalt
 Analyses of asphaltic concrete and asphalt block laid in Washington, D. C. in 1914. *Eng & Contr* 43:43 Ja 13 '15
 Anchor block for asphalt block pavements. G: P. Hemstreet. *diag Eng & Contr* 43:503 Je 2 '15
 Asphalt and wood fiber pavement. C: C. Brown. *Il Munic J* 38:766-7 Je 3 '15
 Asphalt paving in Columbia; determination of cost by force account. J: McNeal. *Il Munic J* 39:539-41 O 7 '15
 Asphalt surfaced concrete in California. *Munic J* 38:284-5 Mr 4 '15
 Binder course in asphalt pavements. R. Klotz. *Eng N* 74:3-4 J1 1 '15
 Camden's municipal asphalt plant. *Il Munic J* 38:127-9 F 4 '15
 Evolution of the asphalt pavement in Toronto. G: Powell. *Good Roads n s* 9:185 My 1 '15
 Kansas City, Mo., maintains open asphalt specifications. C. R. Mandigo. *Il Eng N* 74: 642-4 S 30 '15
 New York city experience with asphalt block pavements. E. J. Morrison. *Eng N* 73:645-6

New York city experience with asphalt-block pavements. H: W. Durham. *Il Eng N* 73:521 Mr 13 '15

- Paving in Salt Lake City: rock asphalt from California and Utah, both limestone and sandstone; sheet asphalt using gilsonite. *Munic J* 37:958 D 31 '14
 Poor sand the cause of the rapid disintegration of a sheet-asphalt pavement. W. M. Cross. *Eng N* 73:621 Ap 1 '15
 Rock asphalt pavements in Salt Lake City, Utah. *Il Eng & Contr* 42:460-1 N 11 '14
 Sheet asphalt for Florida roads. G: L. Watson. *Il Munic J* 39:503-6 S 30 '15
 Theory of the perfect sheet asphalt surface. C. Richardson. *J Ind & Eng Chem* 7:463-5 Je '15

Thin asphalt block pavement for New York state highways. L. Grossman. *Il Eng Rec* 70:630-1 D 12 '14

Wood fiber and asphalt as paving materials. *Il Munic Eng* 48:292-3 My '15

See also Pavements, Bituminous; Pavements, Bituminous concrete

Maintenance and repair

- Asphalt repaving in Manhattan. *Il Munic J* 39:687-9 N 4 '15
 Asphalt repairs in small municipalities. W. H. Taylor, Jr. *Il Munic Eng* 49:171-3 N '15
 Cost of asphalt repairs in Pittsburg. J: B. Townley. *Munic Eng* 48:300 My '15
 Economical asphalt relaying with hot mixer. *Il Elec Ry J* 45:1080-1 Je 5 '15
 Maintenance and repair of asphalt block pavements. E. J. Morrison. *Il Eng N* 74:352-5 Ag 19 '15
 Methods and cost of resurfacing asphalt pavements in Brooklyn by the surface heater method. J. C. Huseman. *Il Eng & Contr* 42: 483-5 N 18 '14
 One-course method reduces asphalt patching costs 15 per cent. F. N. Bingham. *Eng Rec* 72:208 Ag 14 '15
 Portable mixer uses old asphalt for pavement patches. *Il Eng Rec* 71:746 Je 12 '15
 Repairing asphalt pavements without a plant. F. N. Bingham. *Il Eng N* 74:314-15 Ag 13 '15
 Repairing sheet asphalt with home-made plant, Norfolk, Va. W. H. Taylor, Jr. *Eng & Contr* 44:351-2 N 3 '15
 Resurfacing asphalt pavements in San Francisco, Calif. J. Owens. *Il Eng N* 73:74 Ja 14 '15

Pavements, Bitulithic

- Bitulithic pavement and Warrenite roadway. G. H. Perkins. *Il Boston Soc C E J* 1:119-31 Mr '14
 Canadian bitulithic patents adjudged valid by the supreme court of Alberta. *Good Roads n s* 9:158-8 Ap 10 '15
 Canadian bitulithic patents sustained. *Munic Eng* 48:277-8 Ap '15
 Organization and work of a national paving company. *Il Eng N* 73:712-16 Ap 15 '15
 Resurfacing macadam streets with bitulithic. *Il Munic Eng* 49:88 Ag '15
 Resurfacing old macadam roads with Warrenite. *Il map Good Roads n s* 8:232-6 D 5 '14

Pavements, Bituminous

- Asphaltic and bitulithic pavements. R. S. Dulin; R. G. McMullen. *Assn Eng Soc J* 55: 67-79 S '15; Abstract. *Am Soc M* 10 J 37:657 N '15; Discussion. *Assn Eng Soc J* 55:79-94 S '15
 Bituminous construction and maintenance; with discussion. W: D. Uhler. *Good Roads n s* 9:64-7 F 6 '15; Abstract. *Eng Rec* 70:66: D 19 '14
 Cementing value of bituminous binders L. Kirschbraun. *Il diag J Ind & Eng Chem* 6:976-85 D '14; Same. *Eng & Contr* 43:39-4: Ja 13 '15
 Colloidal bituminous pavement. *Il Munic J* 38 307-8 Ja 10 '15
 Effect of leaking illuminating gas on bituminous pavements. R. C. Jones. *Am Gas Ligh J* 102:25 Ja 11 '15
 Effect of leaking illuminating gas on bituminous pavements. G: C. Warren. *Eng & Contr* 42:405 O 28 '14; Excerpts. *Eng N* 73 441 Mr 4 '15

Pavements, Bituminous—Continued

- Laying a new bituminous pavement at West Pittston, Pa. *Il* Munic J 39:152-5 Ag 5 '15
- Maintaining macadam streets in Kansas City. C. R. Mandigo. Eng Rec 70:641-2 D 12 '14
- New Jersey road experiences. Munic J 39:5-6 J1 1 '15
- Repairing and resurfacing bituminous pavements. S. H. Lea. *Il* Eng N 72:1308-10; 73:253-9 D 31 '14, F 11 '15
- Specification and selection of asphaltic materials for street pavement. F. O. X. McLaughlin. Sch Mines Q 36:30-9 N '14
- Types of bituminous construction. F. P. Smith. Munic Eng 49:168-70 N '15; Same. Munic J 39:652-5 O 28 '15
- See also* Pavements, Asphalt; Pavements, Bitulithic; Roads, Bituminous

Pavements, Bituminous concrete

- Adapting an old racetrack to automobile racing. *Il* Eng N 74:603-4 S 23 '15
- Bituminous concrete pavement construction in Washington, D. C. M. Brooke. *Il* Eng & Contr 43:325-6 Ap 7 '15
- Cost of asphaltic concrete pavement with small portable mixer. diag Eng N 73:1037-8 My 27 '15
- Cost of paving with asphaltic concrete on old macadam. Eng & Contr 44:369 N 10 '15
- English specifications for a bituminous concrete mixing plant and details of the acceptance test. W. H. Grieves. Eng & Contr 42:325-6 S 30 '14
- Methods and cost of removing an asphaltic macadam road surface, reworking the old material and relaying it as asphaltic concrete. G. C. Dillman. *Il* diag Eng & Contr 42:532-3 D 9 '14
- Methods and mixtures used in constructing tar concrete pavements. P. P. Sharples. *Il* Eng & Contr 43:256-8 Mr 17 '15
- Stone-filled asphalt surface or fine asphalt concrete. C. Richardson. Eng Rec 70:634 D 12 '14
- Topeka pavement in Queens borough, New York, after two and one-half years. F. A. Reimer. *Il* Good Roads n s 9:240-8 Je 12 '15
- What is asphaltic concrete? Munic J 38:697-8 My 20 '15

Pavements, Brick

- Bituminous paving brick. *Il* Good Roads n s 10:162 S 4 '15
- Brick pavement design. W. D. P. Warren. Eng & Contr 44:2-4 J1 7 '15
- Brick pavement experience in Toronto, Ont. *Il* Eng N 73:168-9 Ja 28 '15
- Brick pavement lasted 24 yr.; new pavement also brick. Jackson. Mich. H. K. Higgins. *Il* Eng N 74:542 O 28 '15
- Brick pavement on old macadam base. E. S. Smith. *Il* Munic Eng 48:312 My '15
- Brick paving in King county, Washington. *Il* Good Roads n s 10:3-4 J1 3 '15
- Brick paving lessons learned in over-coming faults of original designs, Greenville, Texas. A. D. Duck. *Il* Eng & Contr 44:382-4 N 17 '15
- Brick paving on steep grades: recent practice in Toronto, Ont. F. A. Churchill. *Il* Munic Eng 48:105-8 F '15
- Brick roads and streets. J. Laylin. Munic Eng 48:10-15 Ja '15; Same, with discussion. Good Roads n s 9:56-60 F 6 '15
- Cost of brick pavements. V. M. Pierce and C. H. Moorefield. Eng & Contr 44:132-3 Ag 13 '15
- Costs of brick pavement and of concrete base at Gary, Ind. W. P. Cottingham. Eng & Contr 44:88-9 Ag 4 '15
- Costs of monolithic brick road construction. R. L. Bell. Eng & Contr 44:369 N 10 '15
- Cracking of brick pavements is prevented by a mortar cushion. M. Schuyler. Eng Rec 72:175-6 Ag 7 '15
- Cushions for brick pavements. W. C. Perkins. Munic J 39:655-6 O 28 '15; Same. Eng & Contr 44:236 O 27 '15
- Economical paving with 3-in. brick. Eng N 73:223 F 4 '15
- Examples of long-lived pavements. *Il* Good Roads n s 10:81-2 Ag 7 '15
- GROUT filler in brick paving. F. A. Churchill. Concrete Cem 6:94-5 F '15

- How to apply filler to vertical fiber brick pavement. Munic Eng 48:115-16 F '15
- Kansas City tries thin brick with sand-asphalt surface. C. R. Mandigo. Eng Rec 71:546-7 My 1 '15
- Methods and costs of grouting brick pavements. diags Eng & Contr 44:302-4 O 20 '15
- Mortar cushion in Houston eliminates pavement maintenance. W. M. Archibald. *Il* Elec Ry J 46:1045 N 20 '15
- Omit transverse joints in brick pavements. Eng Rec 72:206 Ag 14 '15
- Paving work in Meadville, Pa. B. F. Miller, Jr. Munic J 37:804 D 3 '14
- Rattler test for paving brick abandoned in St. Louis. M. Schuyler. Eng Rec 72:200-1 Ag 14 '15
- Repairing brick pavements after street excavations. P. J. Masterson. Eng N 73:997 My 20 '15; Same. Good Roads n s 9:190 My 1 '15; Munic Eng 48:308-9 My '15; Munic J 38:628-9 My 6 '15
- Sand versus mortar beds for brick pavements. W. P. Blair. Eng N 74:903 N 4 '15
- Study of brick pavement construction. W. P. Blair. Good Roads n s 10:264-5 N 6 '15
- Subdrainage of brick-paved streets, Lakewood, Ohio. E. A. Fisher. diags Eng N 74:557-8 S 16 '15
- Surfacing bridges. F. R. Lander. *Il* Munic Eng 49:50-1 Ag '15
- Thin concrete base for brick pavement. J. L. Harrison. Eng & Contr 41:91-3 Ag 4 '15
- Vertical fiber brick paving. J. I. Tucker. Munic Eng 49:114-16 S '15
- Vitrified brick construction—streets and roads. W. C. Perkins. Eng Rec 72:476 O 16 '15
- Vitrified-brick pavement on an old macadam base, Carlisle, Penn. J. C. Hiteshaw. *Il* diag Eng N 72:1282-3 D 24 '14

See also* Roads, Brick*Pavements, Care of**

- Protecting newly paved streets at Baltimore. Eng N 73:55 Ja 14 '15

Pavements, Concrete

- A. S. M. I. concrete pavement specifications. Good Roads n s 10:287 N 6 '15
- Concrete alley paving in Chicago. S. E. Bates. *Il* Munic Eng 49:147-8 O '15
- Concrete alley paving with wood block joints in Baltimore. Concrete Cem 7:42 J1 '15
- Concrete curb and gutter as constructed in Denver, Colo. E. E. Van de Greyn. *Il* Munic Eng 48:16-18 Ja '15
- Concrete for paving. G. W. Pickels. *Il* Munic Eng 48:50-2 Ja '15
- Concrete pavement damaged by a fire. C. C. Wiley. Eng N 73:936-7 My 13 '15
- Concrete pavement design. W. D. P. Warren. Eng & Contr 42:570-1 D 16 '14; Same. Munic Eng 48:52-5 Ja '15
- Concrete pavement in the track allowance. H. C. Campbell. *Il* Elec Ry J 46:998-1000 N 13 '15
- Concrete pavements of Sioux City, Iowa. T. H. Johnson. *Il* Eng N 73:1110-12 Je 10 '15
- Concrete pavements with dished surfaces; substitution of center for side-gutters. *Il* Eng Rec 71:555 My 1 '15
- Concrete paving on Walnut street, Macon, Georgia. C. H. Fuller. *Il* Good Roads n s 9:94-5 Mr 6 '15
- Costs reduced by monolithic curb, gutter and pavement. *Il* diags Eng Rec 71:111 Ja 23 '15
- Crushed limestone aggregate for concrete pavements. A. M. Wolf. Eng N 74:903 N 4 '15
- Design and construction of a concrete pavement in the village of Glencoe, Ill. *Il* diags Eng & Contr 42:393-4 O 21 '14
- Details of a reinforced concrete pavement in Morgan Park, Ill. *Il* diags Eng & Contr 42:212-13 Ag 26 '14
- Dividing plate of perishable material for expansion joints in concrete. *Il* Munic J 39:201 Ag 5 '15
- Eliminating concrete road joints. H. E. Bilger. Eng Rec 71:193 F 13 '15
- Five years' experience with concrete pavements at Fredonia, Kansas. *Il* Eng Rec 71:580-1 Ap 24 '15

Pavements, Concrete—Continued

- How to prevent the reflection of light and heat from concrete pavements. *Il Munic Eng* 48:373-4 *Je* '15
- Installation of Kahn armor plates. *Il diags Munic Eng* 48:37-9 *Jl* '15
- Kinks in concrete road and pavement construction. C. D. Franks. *Il diags Eng & Contr* 43:114-18 *F* 10 '15
- Method of determining spacing of joints in concrete pavements or roads. H. J. Fixmer. *Eng & Contr* 43:407 *My* 5 '15
- Method of striking off wide concrete street pavements and those having a varying crown. H. C. Campbell. *diags Eng & Contr* 44:69-70 *Jl* 28 '15
- Methods and costs of concrete pavement construction at Des Plaines, Illinois. M. P. Taylor. *Eng & Contr* 43:444-5 *My* 19 '15
- Proportioning concrete; how Aberdeen secures use by contractors of proper amounts of cement and aggregate. L. D. Kelsey. *Munic J* 38:427 *Ap* 1 '15; Same. *Munic Eng* 48:275 *Ap* '15; Same. *Concrete Cem* 7:144 *O* '15
- Wood-block expansion joint for concrete alley pavements. *diag Eng Rec* 70:702 *D* 26 '14
- See also Curbs, Concrete; Pavements, Bituminous concrete; Roads, Concrete

Cost

- Average cost of concrete pavements laid in 1914. *Eng N* 73:941-2 *My* 13 '15
- Cost of concrete pavements. C. H. Moorefield and J. T. Voshell. *Eng & Contr* 44:148 *Ag* 25 '15
- Cost of construction and maintenance of concrete roads. H. J. Kuelling. *Concrete Cem* 6:114-15 *Mr* '15
- Methods and costs of concreting for modern pavement. S. Gausmann. *Elec Ry J* 45:718-19 *Ap* 10 '15; Same. *Eng Rec* 71:451, 534 *Ap* 10, 24 '15

Maintenance and repair

- Practical hints on proper methods of maintenance for concrete pavements. W: M. Kinney. *Il Eng Rec* 70:633-4 *D* 12 '14
- Renovating a worn-out concrete pavement. *Il diag Eng N* 73:172 *Ja* 28 '15

Pavements, Experimental

- Experimental paving in Cleveland. M. B. Greenough. *Munic Eng* 49:184 *N* '15
- Experiments with wood paving blocks; eight years' test of seven species of wood and different angles of courses, conducted by U. S. forest service and city of Minneapolis. C. H. Teesdale. *diag Munic J* 38:623-6 *My* 6 '15
- Test results will form basis for selecting pavements in St. Louis. N. Cunliff. *Il Eng Rec* 72:545-6 *O* 30 '15

Pavements, Granite

- Bituminous filler for granite block in Brooklyn. H. H. Schmidt. *Eng Rec* 71:297-8 *Mr* 6 '15
- Durax pavement in Louisville. D. R. Lyman. *Il Munic J* 39:78 *Jl* 15 '15
- Durax paving in Louisville, Kentucky. *Il Good Roads n* s 10:188 *O* 2 '15
- Expansion joints in granite-block pavement. *Il Eng N* 74:398-9 *Ag* 26 '15
- Granite-block crushing-test abandoned. *Eng N* 74:809 *O* 21 '15
- Granite block pavements. *Eng N* 73:403-4 *F* 25 '15
- Granite block repaving in Worcester. C. D. Pollock. *Il Munic J* 39:541-3 *O* 7 '15
- Joint fillers for granite block pavements. C. D. Pollock. *Munic J* 39:777-8 *N* 13 '15; Excerpts. *Good Roads n* s 10:264 *N* 6 '15; Excerpts. *Eng Rec* 72:475 *O* 16 '15
- Manufacture of granite paving blocks. *Il Eng N* 73:378-81 *F* 25 '15
- Methods and costs of grouting granite block pavement. *Eng & Contr* 44:350-1 *N* 3 '15
- Mortar cushions for granite-block pavements. S. Whinery. *Eng N* 74:420 *Ag* 26 '15
- Napped or recut granite paving in Baltimore; abstracts. R. M. Cooksey. *Eng Rec* 72:475 *O* 16 '15; *Munic J* 39:538-4 *O* 14 '15; *Good Roads n* s 10:267 *N* 6 '15
- Pavements grouted at one application without separation of sand. D. Moomaw. *Eng Rec* 70:551-2 *O* 30 '15

- Paving with redressed granite at Albany, N. Y. *Il Munic J* 37:802-4 *D* 3 '14
- Perfect condition of fourteen-year-old granite block paving. *Il Eng & Contr* 44:192 *S* 8 '15
- Recent practice in construction in wood and granite block. W: A. Howell. *Good Roads n* s 9:98-100 *Mr* 6 '15
- Recut granite block pavements. W: A. Howell. *Munic Eng* 47:467-70 *D* '14; Same. *Eng & Contr* 42:358-60 *O* 14 '14
- Redressed granite-block pavements. *Il Eng N* 73:1020-3 *My* 27 '15
- Relaying street railway tracks in an old granite block pavement in Worcester, Mass. *Il Good Roads n* s 10:140 *S* 4 '15
- Service tests of stone block pavements in Brooklyn. H. H. Schmidt. *Eng & Contr* 43:153-9 *F* 17 '15
- Small granite block pavement. *Il Munic J* 37:799-800 *D* 3 '14
- Small granite blocks laid on cement-sand cushion. *Il Eng Rec* 72:329-30 *S* 11 '15
- Track renewal discloses perfect condition of 14-year-old granite pavement in Worcester, Mass. *Il Eng Rec* 72:229-30 *Ag* 21 '15

Pavements, Stone

- Pavements with pitch filler. *Il Munic J* 39:160-2 *F* 4 '15

See also Pavements, Granite

- Pavements, Tar concrete. See Pavements, Bituminous concrete

Pavements, Wood

- American wood preservers' association; discussion. *Elec Ry J* 45:181-2 *Ja* 23 '15
- Bleeding and swelling of paving blocks. C. H. Teesdale. *Eng & Contr* 44:191 *S* 8 '15
- Broad street wood block pavement, Newark, N. J. *Eng N* 73:153 *Ja* 28 '15
- Cement-sand bed best for wood-block paving. C. R. Mandigo. *Eng Rec* 71:647-8 *My* 22 '15
- Creosoted wood-block paving practice in St. Paul, Minn. plan *Eng N* 73:879 *My* 6 '15
- Douglas fir for paving blocks. O. F. M. Goss. *Eng N* 74:774-6 *O* 21 '15
- Dry sand and cement mixture vs. mortar bed for wood block pavements. T. S. Oxholm. *Eng N* 73:217 *F* 4 '15; Same. *Munic J* 38:777 *Je* 3 '15
- Experiences in creosoted wood block paving. E. R. Dutton. *Good Roads n* s 10:266-7 *N* 6 '15; Abstract. *Eng Rec* 72:475-6 *O* 16 '15
- Experiments with wood paving blocks; eight years' test of seven species of wood and different angles of courses, conducted by U. S. forest service and city of Minneapolis. C. H. Teesdale. *diag Munic J* 38:623-6 *My* 6 '15
- Laying creosoted wood-block on 5 per cent. grades. J. R. West. *Il Eng N* 74:924-5 *N* 11 '15
- Lugs or spacers to prevent expansion failures in wood-block pavements. F. W. Cherrington. *Eng N* 73:275-6 *F* 11 '15
- Pavement troubles along car tracks eliminated. *Eng Rec* 71:116 *Ju* 23 '15
- Paving problems of Queensboro bridge, New York. *Il Eng N* 74:396-7 *Ag* 26 '15
- Popularity of wood-block paving in Great Britain. *Sci Am* 113:449 *N* 20 '15
- Recent practice in construction in wood and granite block; with discussion. W: A. Howell. *Good Roads n* s 9:96-8, 100 *Mr* 6 '15
- Test pavement of creosoted blocks at Kansas City. *Eng Rec* 71:86 *Ja* 16 '15
- Tests vs. inspection of treatment of creosoted wood paving blocks. F. W. Cherrington. *Munic Eng* 48:120-1 *F* '15
- Treated wood block pavement in the United States. *Eng & Contr* 43:365-7 *Ap* 21 '15
- Treated wood block pavements. *Il Munic Eng* 48:94-100 *F* '15
- Use of wood block paving in the United Kingdom. *Good Roads n* s 10:234 *O* 23 '15
- Value of the absorption test for wood blocks. G: W. Tillson. *Good Roads n* s 9:191 *My* 1 '15; Same. *Munic J* 38:776-7 *Je* '15
- Wood block and granite for bridge floors. E: A. Byrne. *Il diags Munic Eng* 48:327-9 *Je* '15
- Wood block pavement after 6 years' service. *Il Eng Rec* 71:153 *Ja* 9 '15
- Wood block pavement in the City of Wenatchee, Wash. F. J. Sharkey. *Il Eng & Contr* 44:300-2 *O* 20 '15

Pavements, Wood—Continued

- Wood block pavement without cushion layer of sand. *Il Eng Rec* 71:52-3 Ja 9 '15
 Wood block paving in Peoria, Illinois. L. D. Jeffries. *Good Roads* n s 9:146 Ap 3 '15

Paving. See Pavements

- Paving brick manufacturers, Institute of. See Institute of paving brick manufacturers

Paving machinery

- Steam melting paving plant. *Il Munic J* 37:814 D 3 '14
 Wonder paver. *Il Munic J* 39:450 S 16 '15

Payrolls

- Field and office methods employed by Louisville water co. in checking construction gang payrolls. G. D. Crain, jr. *Eng & Contr* 43:102-3 F 3 '15

Peace

- Organized efforts to bring about peace. F. W. Kelsey. *Sci Am* 111:491 D 12 '14
 Plan for international peace. E. W. Sells. *J Account* 19:85-96 F '15

Pearl fisheries

- Pearl fisheries of Ceylon. R. L. Geare. *Il Sci Am* S 79:4-5 Ja 2 '15

Pearl harbor, Oahu Island, Hawaiian Islands

- Pearl harbor dry dock; abstract. H. R. Stanford. *Am Soc M E J* 37:413-14 Jl '15

- Pearl harbor drydock. F. R. Harris. *Eng Rec* 71:57-8 Ja 9 '15

- Plan for building Pearl harbor drydock near Honolulu. *Il Eng Rec* 71:82-4 Ja 16 '15; *Eng N* 73:86-9 Ja 14 '15

Pearls

- Artificial production of pearls. F. H. Chidester. *Il Sci Am* S 79:140 F 27 '15

See also Pearl fisheries

- Pearson, Fred Stark, 1861-1915
 In memoriam. *por Gen Elec R* 18:866, 930-3 S '15

- Passing of a great engineer—Dr. F. S. Pearson. H. P. Quick. *Elec Ry J* 45:988-9 My 22 '15; Same. *Elec W* 65:1287-8 My 22 '15

- Sketch. Engineer 119:484-5 My 14 '15

Peat

- Coal substitutes; use of chalk fuel and peat proposed in England. *Sci Am* S 79:352 My 29 '15

- Evaporation tests with peat and peat coke as fuels. H. Winkelmann. *Am Soc M E J* 37:289 My '15

- Oils from peat; abstract. F. M. Perkin. *Am Soc M E J* 37:297-8 My '15

- Russia's power resources; extensive water falls and peat deposits await exploitation. maps *Eng M* 49:909-13 S '15

- Utilization of peat in Italy. *Am Gas Light J* 102:125 F 22 '15

Peat distillation

- Apparatus for distillation of peat; patent by E. Bartholomew. *diag Met & Chem Eng* 13:817 N 1 '15

- Peat-distillation process. *Elec R & W Elec'n* 67:994 N 27 '15

Peking-Hankow railway

- Railways in China. Engineer 119:181-2, 197 F 6, 26 '15

Pellagra

- Widening pellagra zone. *Sci Am* S 78:359 D 5 '14

Penetrometer

- Testing apparatus for various tests of road materials. *Il Munic J* 39:200 Ag 5 '15

Pennants

- Outgrowths of letterpress. G. Sherman. *Il Inland Pr* 55:177-82 My '15

Pennsylvania**Bridges**

- Instructions to employees governing bridge work by Pennsylvania state highway department. *Eng & Contr* 43:22-3 Ja 13 '15

Highway department

- Organisation and standards of the Pennsylvania state highway department. *Il diag Eng & Contr* 42:186-93 Ag 19 '14

Pennsylvania electric association

- 8th annual convention, Bedford Springs, Pa., Sept. 7-10. *Elec R & W Elec'n* 67:524-8 S 18 '15

- 8th annual convention, Bedford Springs, Pa., Sept. 7-10. *Elec W* 68:661-2 S 18 '15

Pennsylvania railroad

- Annual report. *Ry Age* 58:394-6, 429-30 Mr 5 '15

- Electrification of the Pennsylvania at Philadelphia. *Il map Ry Age* 59:889-94 N 13 '15

- Electrification of the Pennsylvania railroad's suburban line at Philadelphia. *Il diag map Ry* 11 57:611-19 N 13 '15

- Fire fighting on the Pennsylvania system. *Ry R* 67:559 O 30 '15

- Norfolk & Western and Pennsylvania electrifications. G. Gibbs. *W Soc E J* 20:814-18 Ap '15

- Pennsylvania electrification at Philadelphia. *Il Elec R & W Elec'n* 67:923-8 N 30 '15

- Pennsylvania electrification at Philadelphia. *Il plan Elec W* 66:1074-6 N 13 '15

- Pennsylvania inaugurates electric service in Philadelphia. *Il diag Eng Rec* 72:590-3 N 13 '15

- Pennsylvania R. R. electrifies Philadelphia district. *Il map Eng N* 74:930-3 N 11 '15

- Pennsylvania railroad test department. C. D. Young. *Il plan Ry Age* (Mech ed) 89:332-7 Jl '15; Same. *Ry Age* 59:6-11 Jl 2 '15; Same. *Ry R* 57:2-5, 42-6, 117-18 Jl 3-10, 24 '15; Excerpts. *Metal Ind n s* 13:288-9 Jl '15

- Pennsylvania track elevation through Wilkinsburg, Pa. *Il plans Ry Age* 59:654-8 O 8 '15

- Philadelphia-Paoli electrification. *Il diag Elec Ry J* 46:980-9 N 13 '15

- Power distribution on Pennsylvania R. R. at Philadelphia. *Il plan Power* 42:685-6 N 16 '15

- Underground cable on the Pennsylvania railroad. L. C. Forshee. *Il Ry Age* 59:269-71 Ag 18 '15

- Westinghouse electro-pneumatic air brake on the Pennsylvania railroad. H. T. Wade. *Il plan Sci Am* 112:594 Je 12 '15

Pennsylvania state association of master plumbers

- Annual convention, Wilkes-Barre, Pa., May 18. *Metal Work* 83:777-9 My 28 '15

- 21st annual convention, Wilkes-Barre, Pa., May 18-19. *Dom Eng* 71:254-7 My 29 '15

Pennsylvania street railway association

- Spring meeting; workmen's compensation, organized safety, small car operation and other topics discussed. *Elec Ry J* 45:935-6, 979-82 My 15-22 '15

- Winter meeting, Dec. 8-9, 1914: abstracts of the reports and papers. *Elec Ry J* 44:1293-9 D 12 '14

Pennsylvania. University

- Evans museum and dental institute, University of Pennsylvania, Philadelphia: designs and plans. *Brickb* 24:pl 45-9 Ap '15

- Two dental buildings: Evans museum and dental institute, University of Pennsylvania. H. D. Eberlein. *Il plans Arch Rec* 37:517-32 Je '15

Pensions

- Baltimore's pension system. *Elec Ry J* 45:172-3 Ja 23 '15

- Steel corporation pensions. *Iron Age* 95:268, 902 Ja 28, Ap 22 '15

Penstocks. See Water pipes**Peoria, Illinois**

- Municipal steamboat landing at Peoria, Ill. *diag plan Eng N* 73:15 Ja 7 '15

- John C. Proctor recreation center

- John C. Proctor recreation center. *Il plans Arch Rec* 37:116-81 F '15

Streets

- Wood block paving in Peoria, Ill. L. D. Jeffries. *Good Roads* n s 9:146 Ap 3 '15

Peptone

- Comparative study of methods for the quantitative determination of sulfur in peptone. H. W. Redfield and C. Huckle. *Am Chem Soc J* 37:807-11 Mr '15

- Perceic oxide**
Derivatives of perceic oxide. C. C. Meloche. *diag Am Chem Soc J* 37:2338-46 O '15
- Pere Marquette railroad**
Abstract of annual report. map Ry Age 59: 931-2 N 19 '15
Appraisal of the Pere Marquette lines in Michigan; abstract of a report to the railroad commission. M. E. Cooley. Ry Age 58: 376-7 F 26 '15
Appraisal of the Pere Marquette R. R. Ry R 58:68-9 Ja 9 '15
Appraisal report fills ten large boxes. *Il Eng Rec* 71:200-2 F 13 '15
- Perfumery**
Contributions of the chemist to the perfumery and essential oil industry. E. T. Beiser. *J Ind & Eng Chem* 7:986-7 N '15
Perfumery farming in the United States. *Sci Am* 112:212 Mr 6 '15
- Pergolas**
Rustic pergola for the country home. *Il diags Bldg Age* 37:87 Je '15
- Periodic law**
Results of recent investigations. S. Dushman. *Gen Elec R* 18:614-21 Ji '15
- Periodicals**
Library files of periodicals. A. Fantl. *Eng N* 74:978 N 18 '15
See also Engineering periodicals; Newspapers
- Periodides**
Periodides of acid amides and their addition products with metallic salts; substances of exceptionally high molecular weight. F. J. Moore and R. M. Thomas. *Am Chem Soc J* 36:1928-37 S '14
- Periscope**
Modern submarines in war and peace. S. Lake. *Int Marine Eng* 20:466 O '15
Periscope, the searching eye of the submarine. *Il Sci Am* 112:96 Ja 30 '15
Scissors periscope. *Il Sci Am* S 80:228 O 9 '15
Submarine periscopes. E. Coustet. *Il diags Sci Am* S 80:269-70 O 23 '15; Abstract. *Eng M* 50: 110-11 O '15
Various forms of the periscope. *diags Sci Am* S 79:322 My 22 '15
- Perishable freight association, American railway.** *See American railway perishable freight association*
- Perkin medal**
Ninth Perkin medal; presentation to Edward Weston. *Eng & Min J* 99:234-5 Ja 30 '15
Perkin medal award to Edward Weston. *J Ind & Eng Chem* 7:243-54 Mr '15
Presentation of the Perkin medal to Edward Weston. *Met & Chem Eng* 13:111-16 F '15
- Permeameter**
Koepsel permeameter. C. W. Burrows. *Il diags U S Bur Stand Bul* 11:101-30 N 15 '14; Abstract. *Ellec W* 65:95-6 Ja 9 '15; Summary. *Sci Am* S 79:197 Mr 27 '15
- Permutized water**
Value of permutized water for processing yarns. A. R. Calvo. *Textile World* 49:243-4 My '15
- Perry memorial**
Reinforced-concrete cap of Perry memorial column. H. C. Baird. *diags Eng N* 74:154-5 Ji 22 '15
- Personal injuries**
Liability of machinery manufacturers. A. L. H. Street. *Iron Age* 95:222-3 Ja 21 '15
- Personality**
Actual instances of dual personalities. E. T. Rehbert. *Sci Am* S 79:2-3, 25-7 Ja 2-9 '15
- Perspective**
Elementary perspective drawing. G. W. Kittredge. *Il Bldg Age* 37:30-2 Ap; 31-3 My; 24-6 Je; 25-8 Ji; 24-6 Ag; 35-8 S; 32-4 O; 39-40 N '15
- Peru**
Banking and credit in Argentina, Brazil, Chile, and Peru. E. N. Hurley. *U S Bur For & Dom Com* 90:1-72 '14
- Financial developments in South American countries. W. H. Lough. *U S Bur For & Dom Com* 103:35-8 '15
See also Architecture—Peru
- Industries and resources**
Casapalca district, Peru. *Eng & Min J* 99:355 F 20 '15
Romantic story of vanadium. C. J. Stark. *Il Iron Tr R* 57:781-4 O 21 '15
- Petroleum**
Analytical distillation of petroleum. W. F. Rittman and E. W. Dean. *diags J Ind & Eng Chem* 7:185-95, 754-60 Mr. S '15
Burning oil well and the well that extinguished itself. *Sci Am* S 80:343 N 27 '15
Burton process of cracking to make gasoline. C. H. Claudy. *Il Sci Am* 112:5-4 Ja 2 '15
Capillary concentration of gas and oil. C. W. Washburne. *Am Inst Min E Bul* 93:2365-78 S '14; Discussion. 100:831-46 Ap '15
Chlorides in oil-field waters. C. W. Washburne. *Am Inst Min E Bul* 97:375-81 Mr '14; Discussion. 99:1374-5; 100:825-30 Je '14, Ap '15
Crude oil as a reducing agent. *Iron Tr R* 56: 525-6 Mr 11 '15
Dehydrating oil plant of Nevada petroleum co., California. S. J. Hardison. *Il diags Am Inst Min E Bul* 99:537-44 Mr '15
Dehydrating petroleum oil. *diags Met & Chem Eng* 13:570 S 1 '15
Estimation of aromatic hydrocarbons in cracked petroleum. W. F. Rittman, T. J. Twomey and G. Egloff. *Met & Chem Eng* 13:682-6 O 1 '15
Estimation of oil reserves. C. W. Washburne. *Am Inst Min E Bul* 98:469-71 F '15
Fluorescence of petroleum distillates. B. T. Brooks and R. F. Bacon. *Sci Am* S 79:61 Ja 23 '15
Gas and oil wells through coal seams; discussion. *Am Inst Min E Bul* 100:846-58 Ap '15
Improvement of high boiling petroleum oils, and the manufacture of gasoline as a by-product therefrom, by the action of aluminum chloride. A. M. McAfee. *J Ind & Eng Chem* 7:737-41 S '15; Same. *Met & Chem Eng* 13:592-7 S 15 '15; Same abr. *Am Gas Light J* 103:293-5+ N 8 '15; Abstract. *Eng N* 74:532 S 16 '15
Increased gasoline yield and toluol from petroleum. *Am Gas Light J* 102:156-7 Mr 8 '15
Innovations in petroleum technology. *Eng M* 49:111-12 Ap '15
Iodine number of linseed and petroleum oils. W. H. Smith and J. B. Tuttle. *U S Bur Stand Tech Pa* 37:1-17 '14; Same. *J Ind & Eng Chem* 6:994-8 D '14
Manufacture of gasoline by cracking heavy oils. *Sci Am* S 79:283 My 1 '15
Motor fuels; "cracked" spirits. V. B. Lewes. *Am Gas Light J* 103:179-81 S 20 '15
Oil, gas, and water content of Dakota sand in Canada and United States. L. G. Huntley. *Am Inst Min E Bul* 102:1333-53 Je '15; Discussion. 102:2428-30 D '15
Oil in an igneous rock. J. A. Udden. *Econ Geol* 10:582-5 S '15
Oils from peat; abstract. F. M. Perkin. *Am Soc M E J* 37:297-8 My '15
Petroleum developments. J. D. Northrop. *Power* 41:245 F 16 '15
Petroleum exhibit—San Francisco Panama-Pacific international exposition, February 20 to December 4, 1915. *J Ind & Eng Chem* 7:259-80 Mr '15
Preparation of gasoline and kerosene from heavier hydrocarbons. B. T. Brooks and others. *diags J Ind & Eng Chem* 7:180-5 Mr '15
Pressure distillation of petroleum hydrocarbons. A. F. Bjerregaard. *Il diags J Ind & Eng Chem* 7:578-7 Ji '15
Range of applicability of the liquid sulphur dioxide method for determining aromatic constituents in hydrocarbon mixtures. W. F. Rittman and R. J. Moore. *diag Met & Chem Eng* 13:713-14 O 15 '15

Petroleum—Continued

Relations among the physical constants of the petroleum distillates. W. F. Rittman and G. Egloff. *J Ind & Eng Chem* 7:578-82 J1 '15

Rittman process of cracking. C. H. Claudy. *il Sci Am* 112:267 Mr 20 '15

Rittman vaporizes petroleum in still. *diag Automobile* 32:555 Mr 25 '15

Role and fate of the connate water in oil and gas sands. R. H. Johnson. *Am Inst Min E Bul* 98:221-6 F '15; Discussion. 101:1157-62; 103:1449-59; 105:2057-60 My, J1, S '15

Temperature coefficient of expansion of petroleum residuums. H. Rossbacher. *diag J Ind & Eng Chem* 7:577-8 J1 '15

Test plant operated to deodorize oil refinery wastes. F. R. Hesser. *il diags Eng Rec* 72:541-2 O 30 '15

Thermal reactions of petroleum hydrocarbons in the vapor phase. W. F. Rittman. *J Ind & Eng Chem* 7:945-53 N '15

Topping plants of California. A. F. L. Bell. *il diags Am Inst Min E Bul* 105:1769-99 S '15; Discussion. 108:2426 D '15

Variations of the physical characteristics of a petroleum residuum with increasing percentages of grahamite. H. Rossbacher. *J Ind & Eng Chem* 7:208-6 Mr '15

See also Coal-tar products; Gas; Gas, Oil; Gasoline; Kerosene; Oil lands; Oil shales; Oil storage

Bibliography

Bibliography of the chemistry of gas manufacture. W. F. Rittman and M. C. Whitaker. *U S Bur Mines Tech Pa* 130:11-12 '15

Cost

Cost of maintaining production in California oil fields. M. E. Lombardi. *Am Inst Min E Bul* 105:2109-14 S '15; Discussion. 108:2427 D '15

Laws and regulations

Regulation of oil and gas wells in California. L. H. Eddy. *Eng & Min J* 100:383-4 S 4 '15

Transportation

See Petroleum pipe lines; Tank cars; Tank ships

Well boring

Comparative costs of rotary and standard drilling. M. L. Requa. *Am Inst Min E Bul* 98:217-19 F '15

Drilling for oil. *Sci Am S* 80:199 S 25 '15

Evolution of drilling rigs. R. B. Woodworth. *il diags Am Inst Min E Bul* 107:2247-312 N '15

Geologic conditions that may confuse oil drillers. D. Hager. *il Eng & Min J* 100:590 O 9 '15

Improved methods of deep drilling in the Coalinga oil field, California. M. E. Lombardi. *il diag Am Inst Min E Bul* 98:209-15 F '15

Protecting California oil fields from damage by infiltrating water. R. P. McLaughlin. *diag Am Inst Min E Bul* 108:2313-19; Discussion. 2413-19 D '15

Alaska

Petroleum fields of Alaska. A. H. Brooks. *maps Am Inst Min E Bul* 98:199-207 F '15

Alberta

Correlation and geological structure of the Alberta oil fields. D. E. Dowling. *map Am Inst Min E Bul* 102:1355-64 Je '15

California

California oil in 1914. M. L. Requa. *Eng & Min J* 99:139-40 Ja 16 '15

California petroleum production, first half of 1915. *Eng & Min J* 100:238 Ag 7 '15

Cost of maintaining production in California oil fields. M. E. Lombardi. *Am Inst Min E Bul* 105:2109-14 S '15; Discussion. 108:2427 D '15

Protecting California oil fields from damage by infiltrating water. R. P. McLaughlin. *diag Am Inst Min E Bul* 108:2313-19; Discussion. 2413-19 D '15

Chile

Petroleum prospects in Chile. *Sci Am S* 80:48 J1 17 '15

Galicia

Galician oil fields in war time. J. R. Falkowicz. *Eng & Min J* 99:690 Ap 17 '15

Illinois

Illinois oil in 1914. R. S. Blatchley. *Eng & Min J* 99:136-7 Ja 16 '15

Kentucky

Oil and gas possibilities of Kentucky. F. J. Fohs. *map Am Inst Min E Bul* 99:621-8 Mr '15

Louisiana

Petroleum in Texas and Louisiana. A. J. Hazlett. *Eng & Min J* 99:137-9 Ja 16 '15

Mexico

Furber oil field, Mexico. E. Degolyer. *il map Am Inst Min E Bul* 105:1899-1911 S '15

Mexican oil fields. L. G. Huntley. *il maps Am Inst Min E Bul* 105:2067-107 S '15

Occurrences of petroleum in eastern Mexico as contrasted with those in Texas and Louisiana. E. T. Dumble. *Am Inst Min E Bul* 104:1623-38 Ag '15; Discussion. 108:2434-5 D '15

Oil fields of Mexico. E. Ordoñez. *Am Inst Min E Bul* 94:2531-5 O '14; Discussion. 100:817-28 Ap '15

Oil region of northeastern Mexico. V. R. Garfias. *bibliog Econ Geol* 10:195-224 Ap '15

Mississippi

Probable oil pools in Mississippi. *Am Gas Light J* 108:183 S 20 '15

Montana

Probable oil and gas in Montana. J. P. Rowe. *Eng & Min J* 99:647-9 Ap 10 '15

Oklahoma

Influence of the Cushing pool in the oil industry. R. H. Johnson and L. G. Huntley. *Eng Soc W Pa* 31:460-72; Discussion. 31:472-87 J1 '15

Oil pools of southern Oklahoma and northern Texas. J. H. Gardner. *maps Econ Geol* 10:422-34 J1 '15

Texas

Occurrences of petroleum in eastern Mexico as contrasted with those in Texas and Louisiana. E. T. Dumble. *Am Inst Min E Bul* 104:1623-38 Ag '15

Oil pools of southern Oklahoma and northern Texas. J. H. Gardner. *maps Econ Geol* 10:422-34 J1 '15

Petroleum in Texas and Louisiana. A. J. Hazlett. *Eng & Min J* 99:137-9 Ja 16 '15

United States

Petroleum in the United States in 1914. *Eng & Min J* 99:69 Ja 9 '15

Washington

Possible occurrence of oil and gas fields in Washington. C. E. Weaver. *Am Inst Min E Bul* 103:1419-27 J1 '15; Discussion. 108:2431-3 D '15

Petroleum, Synthetic

Gasoline from synthetic crude oil. W. O. Snelling. *Am Inst Min E Bul* 100:695-704 Ap '15; Same. *Sci Am S* 79:189-91 Mr 30 '15; Same cond. *Sci Am* 112:266-7 Mr 20 '15; Abstract. *Met & Chem Eng* 13:180-1 Mr '15; Discussion. *Am Inst Min E Bul* 101:1163-9 My '15

Gasoline from synthetic oil. W. O. Snelling. *Eng & Min J* 99:379 F 20 '15; Same. *Am Gas Light J* 102:156 Mr 8 '15

Petroleum as fuel

Air and steam as atomizing agents. R. A. Bull. *diags Iron Tr R* 5:626-9 S 30 '15; Same. (Tests in atomizing fuel oil with steam and air). *Foundry* 42:424-7 O '15; Excerpts. *Iron Age* 96:1049-50 N 4 '15

Auxiliary steam plant of the Vancouver Island power company. H. W. Beecher. *il plans Elec R & W Elec'n* 67:378-8 Ag 28 '15

Comparative furnace efficiency. R. J. Weltaner. *Met & Chem Eng* 13:357-61 Je '15

Petroleum as fuel—Continued

- Comparison of the economy of powdered coal, oil and water gas for heating furnaces. C. F. Herrington. Eng N 72:1156-8 D 10 '14
- Crude oil as fuel in heating systems. H. S. Haley. diags Dom Eng 70:104-6, 139-41 Ja 23-30 '15
- Description of nut, bolt and rivet shop of Upson nut co. with details of arrangement and equipment. R. V. Sawhill. Iron Tr R 56:1249-51 Je 17 '15
- Difficulties accompanying the prevention of dense black smoke and its relation to the cost of fuel and locomotive repairs; report. Ry R 57:337-8 S 11 '15
- Fuel oil. Sci Am S 79:325 My 22 '15
- Fuel oil for locomotives. G. M. Bean. diags Ry R 56:752-6 Je 5 '15; Same cond. Power 41:900-1 Je 29 '15; Same cond. Ry Age (Mech ed) 89:280-1 Je '15; Same cond. Ry Age 58:1115-16 My 28 '15; Same cond. Sci Am 113:92 J1 '15
- Fuel oil in the navy. Sci Am S 79:218 Ap 3 '15
- Fuel oil installations on the Grand Trunk Pacific Ry. J. G. LeGrand. diags Ry R 56:828-31 Je 19 '15
- Fuel oil on railroads. Sci Am S 79:203 Mr 27 '15
- Largest oil-burning steamers. Sci Am 113:361 O 23 '15
- Lead smelting at El Paso. H. F. Elaster. Am Inst Min E Bul 104:1493-1506 Ag '15; Excerpts. Eng & Min J 100:356-7 Ag 28 '15
- Liquid fuel for foundry cupolas. E. F. Cone. diags Iron Age 95:1058-9 My 13 '15
- Liquid fuel for melting. Iron Tr R 57:222-3 J1 29 '15
- Low-pressure oil-burning metallurgical furnaces. Il Met & Chem Eng 13:510-11 Ag '15
- Motor fuels; situation in England, and on the continent. V. B. Lewes. Am Gas Light J 103:165-7, 170-1, 179-81 S 20 '15
- Oil-burning stand-by plants. C. H. Delany. Power 42:172-5 Ag 3 '15; Abstract. Elec W 65:1514 Je 12 '15
- Oil firing in foundry practice. W. N. Best. Iron Age 95:870-1 Ap 15 '15
- Petroleum as fuel under boilers and in furnaces for heating, melting, and heat treatment of metals. W. N. Best. Il diags Am Inst Min E Bul 104:1527-37 Ag '15; Discussion. 108:2420-2 D '15
- Possible savings with oil fuel. Old Scotch. Int Marine Eng 20:81 F '15
- Reverberatory smelting practice of Nevada consolidated copper co. Met & Chem Eng 13:681-2 O 1 '15
- Roasting and leaching concentrator slimes tailings. L. Addicks. Am Inst Min E Bul 104:1477-8 Ag '15; Same. Met & Chem Eng 13:533 S 1 '15
- Test of Mexican fuel oil. Ind Eng 15:29 Ja '15

See also Gas and oil engines

Petroleum engines. See Gas and oil engines

Petroleum industry

- Depreciation as applied to oil properties. P. W. Henry. Am Inst Min E Bul 97:23-30 Ja '15; Discussion. 101:1148-51 My '15
- Influence of the Cushing pool in the oil industry. R. H. Johnson and L. G. Huntley. Eng Soc W Pa 31:460-72; Discussion. 81:472-87 J1 '15
- 1914 oil product. Am Gas Light J 103:59 J1 26 '15
- Oil production a record breaker. Am Gas Light J 102:43-4 Ja 18 '15
- Sliding royalties for oil and gas wells. R. H. Johnson. Am Inst Min E Bul 102:1292-4 Je '15; Discussion. 108:2423-5 D '15
- World's production of petroleum in 1914. Am Gas Light J 103:123 Ag 23 '15

Petroleum pipe lines

- California oil pipe line, 200 miles long, built in record time of 15 months. Il map Eng Rec 72:294-6 S 4 '15

Pumping California crude oil. C. P. Bowie. Il Eng N 74:1068-71 D 2 '15

Pharmaceutical chemistry. See Chemistry, Medical and pharmaceutical

Pharmacy

See also Drugs—Analysis

Phase advancers

- Action of phase advancer in regulating power-factor of an induction motor. diags Elec W 66:191 J1 24 '15
- Methods of testing the Scherbius compensator. A. A. Ahmed. Inst E E J 53:640-8 My 1 '15

Phenacetin

- Estimation of phenacetin and salol in admixture. W. O. Emery, G. C. Spencer and C. C. LeFebvre. J Ind & Eng Chem 7:681-4 Ag '15

Phenol. See Carbollic acid

Phenolates

- Study of the reaction of alkali salts of sulfonic acids with alkali phenolates by dry distillation. E. H. Nollau and L. C. Daniels. Am Chem Soc J 86:1885-91 S '14

Phenolquinolinein

- Phenolquinolinein, a heterocyclic analog of phenolphthalein. A. W. Dox. Am Chem Soc J 37:1948-9 Ag '15

Phenylcytosine

- Researches on pyrimidines; synthesis of 4-phenylcytosine. T. B. Johnson and E. H. Hemingway. Am Chem Soc J 37:878-83 F '15

Philadelphia, Pennsylvania

- Comprehensive city planning in Philadelphia. B. A. Haldeman. Il Am Inst Arch J 3:255-80 Je '15

Architecture

- Architectural reclamation of small areas in cities. H. D. Eberlein. Il Arch Rec 37:1-25 Ja '15
- New building for the T-square club, Philadelphia, Pa. J. F. Harbeson. Il plans Brickb 24:253-4 O '15
- Three types of Georgian architecture; the evolution of the style in Philadelphia. H. D. Eberlein. Il diags Arch Rec 37:159-76 F '15

Bridges

- Better looking city railway bridges in Philadelphia. M. L. Cooke. Eng N 74:682 O 7 '15
- Street bridges in Philadelphia designed for permanent artistic effects. Il diags Eng Rec 72:598-600 N 13 '15

Bureau of highways

- Cost keeping system for work performed by municipal forces of the Philadelphia bureau of highways. Eng & Contr 43:292-4 Mr 31 '15; Same cond. Eng Rec 71:360-1 Mr 20 '15
- Functions of the planning boards installed in the Bureau of highways and street cleaning. W. H. Connell. Eng & Contr 44:187 S 8 '15; Same. Good Roads n s 10:168 S 11 '15
- 1914 operations of the Philadelphia bureau of highways and street cleaning. Il Good Roads n s 9:131-5 Ap 3 '15

- Organization, character of personnel, scope of work, and methods of operation and control of a large municipal highway department. W. H. Connell. Il map J Fr Inst 179:439-69 Ap '15

Electrical bureau

- Signal box records. P. I. Patton. Munic J 39:397-8 S 9 '15

Public works

- Pertinent paragraphs from a real report. M. L. Cooke. Il Eng M 50:445-9 D '15

Railroads

- Electrification of the Pennsylvania railroad's suburban line at Philadelphia. Il diags map Ry R 57:611-19 N 13 '15
- Pennsylvania R. R. electrifies Philadelphia district. Il map Eng N 74:380-3 N 11 '15
- Philadelphia-Paoli electrification. Il diags Elec Ry J 46:980-8 N 13 '15
- \$24,000,000 South Philadelphia railroad improvement now well under way. Il map Eng Rec 72:327-9 S 11 '15

Rapid transit

- City of Philadelphia starts rapid-transit work. H. H. Quimby. Eng N 74:572-3 S 16 '15
- Second Philadelphia report issued. Elec Ry J 46:663 O 2 '15

Philadelphia, Pennsylvania—Continued

Sewerage

- Collection and treatment of sewage. G: S. Webster. Boston Soc C E J 1:277-89 My '14
Collection and treatment of sewage in Philadelphia. Eng & Contr 42:208-7 Ag 26 '14
Final report on Philadelphia's plan of sewage treatment. Eng Rec 71:638 My 22 '15
Philadelphia sewage treatment report. Munic J 38:840-2 Je 17 '15
Philadelphia's sewerage report; editorial comment. Munic J 39:257-9 Ag 19 '15
Sewerage developments at Philadelphia. Eng & Contr 43:sup20 My 26 '15

Streets

- Dust suppression and street cleaning. W: H. Connell. Good Roads n s 10:249-52 N 6 '15; Same abr. Eng & Contr 44:233-4 S 29 '15
Philadelphia highway work; use of granite block in street railway tracks and wood block near schools and hospitals. II Munic J 38:619-22 My 6 '15
Road and boulevard construction in Philadelphia. II map Munic Eng 48:248-8 Ap '15
Rules and regulations governing street traffic in Philadelphia. II diag Eng & Contr 42:321-4 S 30 '14

See also Philadelphia—Bureau of highways

Water supply

- New sedimentation basin will halve costs of sand cleaning at Philadelphia filters. F. D. West. diag Eng Rec 71:591-3 My 8 '15
Philadelphia water-filter operations in 1914. Eng N 73:576-7 Mr 25 '15
Philadelphia water-works handicap: 1804-1914. J: C. Trautwine, Jr. Eng N 73:900-1 My 6 '15
Philadelphia water-works in 1914. Eng N 73:506 Mr 11 '15
Results of task work without bonus in cleaning filter sand at Philadelphia. S. E. Thompson. Eng Rec 70:608-9 D 5 '14; Same. Eng & Contr 43:579-81 D 23 '14; Same cond., with discussion. Am Soc M E J 37:102-4 F '15; Same cond. (Efficiency study of filter cleaning) Munic J 38:253-4 F 25 '15

Wharves

- Philadelphia's Southwark piers completed. II diag plans Eng Rec 72:478-80 O 16 '15
Shipping piers in Southwark district of Philadelphia. II diag plans Eng N 74:421-4 Ag 26 '15

Philippine Islands

Commerce

- Philippine markets for American lumber. F. H. Smith. U S Bur For & Dom Com 100:1-16 '15

Industries and resources

- Gold dredging in the Philippines. II Eng & Min J 99:685-8 Ap 17 '15
Philippine forest wealth. D. C. Worcester. II Am For 21:1-18 Ja '15
Rattan supply of the Philippines. J: R. Arnold. U S Bur For & Dom Com 95:1-40 '15

Law

- United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1053-67 '15

Public works

- Philippine road built at high level to escape flood damage. II map Eng Rec 72:264-6 Ag 28 '15

Phonetics

- Visible speech; eye seeing and the rule measuring the difference between sounds. A. L. Kroeber. II diag Sci Am 113:471 My 22 '15

Phonograph

- Electrically operated phonograph. II diag Elec W 65:1480 Je 5 '15
Microscopic study of the phonograph. J. B. Taylor. II Sci Am 113:428-9+ N 13 '15
Phonograph diaphragm operating on magnetic principles and adaptable to telephone circuits. II diag Elec W 68:1161 N 20 '15
Phonograph shop. See Edison phonograph shop
Phonology. See Phonetics

Phonopticon

- Mechanical eye bringing sight to the blind. L. E. Dodd. II Sci Am 113:138+ Ag 14 '15
Phonoptikon and the optophone. E. E. Fournier d'Albe. Sci Am 113:167 N 27 '15

Phosphate lands

- United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1050-2 '15

Phosphates

- Formation of tri-calcium phosphate on mixing ground limestone with acid phosphate. R. N. Brackett and B. Freeman. J Ind & Eng Chem 7:620 Jl '15
Newly discovered phosphate deposit in Tennessee. H: V. Maxwell. Eng & Min J 99:1110-11 Je 26 '15
Phosphate rock as furnace flux. J. A. Barr. II Iron Tr R 56:183-5 Ja 21 '15
Phosphate rock industry of Florida. L. W. Tucker. II Boston Soc C E J 1:509-22 D '14
Phosphates of 2,3-distearin. R. R. Renshaw and R. R. Stevens. Am Chem Soc J 36:1770-2 Ag '14
Report of the committee of American chemical society on research and analytical methods—phosphate rock. J Ind & Eng Chem 7:446-8 My '15

Phosphor-bronze. See Bronze

Phosphorescence

- Experiments on the nature of the photogenic processes in the lampyridae. F. A. McDermott. Am Chem Soc J 37:401-4 F '15
Experiments on the nature of the photogenic substance in the firefly. E. N. Harvey. diag Am Chem Soc J 37:396-401 F '15
Production of light by animals. U. Dahlgren. II J Fr Inst 180:513-37, 711-27 N-D '15 (to be cont)

Phosphoric acid

- Comparison of a few methods for total phosphoric acid in superphosphate. C. A. Peters. J Ind & Eng Chem 7:39-40 Ja '15
Factor to be used for the calculation of the phosphoric acid in Neumann's method. S. L. Jodidi. Am Chem Soc J 37:1708-10 Jl '15
Factor to be used for the calculation of the phosphoric acid in Neumann's method. S. L. Jodidi and E. H. Kellogg. J Fr Inst 180:349-67 S '15

- Strength of nitric acid, period of extraction, and ignition as affecting the gravimetric determination of phosphoric acid in soils. O. L. Brauer. J Ind & Eng Chem 6:1004-5 D '14

Phosphorus

- Analoid method for the determination of phosphorus in steel, iron and slag. Met & Chem Eng 13:191-2 Mr '15

- Colorimetric determination of phosphorus in soil extracts. C. E. Millar and F. A. Gangler. J Ind & Eng Chem 7:619 Jl '15

- Estimation of uranium and phosphorus. H. D. Newton and J. L. Hughes. Am Chem Soc J 37:1711-15 Jl '15

- Factor to be used for the calculation of the phosphoric acid in Neumann's method. S. L. Jodidi. Am Chem Soc J 37:1708-10 Jl '15

- How to detect phosphorus in steel. W. T. Stead. II Iron Tr R 57:989-90 N 18 '15

- Nephelometric estimation of phosphorus. P. A. Kober and G. Egerer. Am Chem Soc J 37:2373-81 O '15

- Phosphorus in malleable castings. E. Touceda. II Iron Tr R 57:634-6 S 30 '15; Same. Foundry 43:446-9 N '15; Same cond. Iron Age 96:924-6 O 21 '15

- Precipitation of phosphorus as ammonium phosphomolybdate in the presence of sulfuric acid. K. G. Falk and K. Sugita. Am Chem Soc J 37:1507-15 Ja '15

Phosphorus pentachloride

- Densities and degrees of dissociation of the saturated vapor of phosphorus pentachloride. A. Smith and R. H. Lombard. diag Am Chem Soc J 37:2055-62 S '15

Photochemistry

- Features of photo-chemistry. H. H. McHenry. Sci Am S 79:27 Ja 9 '15

See also Photographic chemistry

Photo-electric cells

Potassium photo-electric cells; a study of the relationship of illumination and current. H. E. Ives. *diags Sci Am S 80:348-50, 862-3 N 27-D 4 '15*

Zero method with photo-electric cells; abstract. F. K. Richtmyer. *plan Elec W 66: 263 JI 81 '15*

Photo-electricity

Photoelectric relay. J. Kunz. *diag Elec W 66: 934 O 23 '15*

Photo-electricity; the intimate relations of light and electricity. J. A. Fleming. *Sci Am S 80:6-7, 18-19 JI 3-10 '15*

Photoengraving

Development and recent advances of the technographic arts. L. E. Levy. *II J Fr Inst 180:387-408 O '15*

Standardization of the trimming of blocks for engravings. F. W. Gage. *II Inland Ptr 55: 246-9 My '15*

Cost

Increase in prices for engravings. *Inland Ptr 55:769-70 S '15*

Photogenic process. See Phosphorescence**Photographic chemistry**

Contributions of the chemist to the photographic industry. F. C. Frary. *J Ind & Eng Chem 7:988-9 N '15*

Evolution of the modern dry plate; its history, chemistry and manufacture. E. P. Wrightman. *Sci Am S 80:126-7 Ag 21 '15*

Hydrogen potentials of sodium hydroxide solutions and the dissociation constant of water. F. C. Frary and A. H. Nietz. *Am Chem Soc J 37:2268-8 O '15*

Hydrolysis of sodium carbonate in solution. F. C. Frary and A. H. Nietz. *Am Chem Soc J 37:2268-73 O '15*

Reaction between alkalies and metol and hydroquinon in photographic developers. F. C. Frary and A. H. Nietz. *Am Chem Soc J 37:2273-9 O '15*

Reducing power of photographic developers as measured by their single potentials. F. C. Frary and A. H. Nietz. *diags Am Chem Soc J 37:2246-63 O '15*

Removal of photographic developing and fixing agents from films and prints. C. A. Brautlecht. *J Ind & Eng Chem 7:899 O '15*

Photographic paper

Diffusing media; the optical properties of photographic papers. *Illum Eng Soc 10:388-93 no 5 '15*

Japanese tissue as a photographic paper. *Sci Am 113:299 O 2 '15*

Photographic paper to be made in America. *Sci Am 113:248 S 18 '15*

Photographs

Nine photographs by Ben J. Lubschez. *Am Inst Arch J 8:380a-380h S '15*

Photography

Application of the new high-efficiency tungsten lamp to photography; with discussion. M. Lucklesch. *II Illum Eng Soc 10:149-80 no 2 '15*

Artificial illuminants for use in practical photography. C. E. K. Mees. *J Fr Inst 180: 481-2 O '15*

Development and recent advances of the technographic arts. L. E. Levy. *II J Fr Inst 180:387-408 O '15*

Evolution of the modern dry plate; its history, chemistry and manufacture. E. P. Wrightman. *Sci Am S 80:126-7 Ag 21 '15*

Gas-filled lamp in photography. *Elec W 65: 1164-5 My 8 '15*

How to make carbon positives. C. C. Kiplinger. *Sci Am 112:289 Mr 27 '15*

Invention and development of photography; from the daguerrotype to the moving picture. *II Sci Am 112:530-4 Je 5 '15*

Making good photographs. *Sci Am S 80:266-7 O 23 '15*

Nitrogen-filled tungsten lamp for photographic purposes; abstract. W. Voegel. *Elec W 65: 1116-17 My 1 '15*

Physics of the photographic process. C. E. K. Mees. *diags J Fr Inst 179:141-60 F '15; Abstract. Met & Chem Eng 18:923 D 1 '15*

Possibilities in technical photography. F. Hennius. *Eng Soc W Pa 30:991-1002 Ja '15*

Recent advances in photography. H. Leffmann. *II J Fr Inst 178:748-9 D '14; Same. Sci Am S 79:44-5 Ja 16 '15*

Relative photographic and visual efficiencies of illuminants. L. A. Jones, M. B. Hodgson and K. Huse. *J Fr Inst 180:484-7 O '15*

See also Blue prints; Cameras; Chronophotography; Color photography; Moving pictures; Photographic paper; Photographs; Photokaleidograph; Photomicrography; Phototelegraphy; Radiography; Stereoscopic views; Telephotography

Reproduction of plans, drawings, etc.

Camera vs. the pantograph. H. A. Williamson. *diags Colliery 35:288-91 Ja '15; Excerpt. Eng M 48:901-3 Mr '15*

How tracings are reproduced for the federal evaluation. *Eng Rec 71:675 My 29 '15*

Machine reproduces, develops and prints all in itself. *II Eng Rec 72:32 JI 3 '15*

New reproducing machine of the Commercial camera co. *II Iron Tr R 56:1106-7 Je 3 '15*

Photographing on both sides of a sheet. *II Iron Age 95:1122-3 My 20 '15*

Photostat and its use. L. D. Burlingame. *II Mach 21:951-4 Ag '15*

Portland, Ore., bureau of photography. H. M. White. *II Munic J 39:577-8 O 14 '15*

Photography, Aerial

Military rocket camera. *II Sci Am 112:125 F 6 '15*

Photographic maps; methods of producing correct charts with the camera. Kappel. *II diags Sci Am S 80:200-1 S 25 '15*

Photography, Bureaus of. See Portland, Oregon—Bureau of photography

Photography, Color. See Color photography

Photography, Military

Military air scouting by motion pictures. E. A. Dench. *Sci Am 112:156 F 13 '15*

Military rocket camera. *II Sci Am 112:125 F 6 '15*

See also Photography of projectiles

Photography, Submarine

Submarine photographic apparatus. *II Elec W 65:1330-1 My 22 '15*

Submarine photography. *II Int Marine Eng 20:327 JI '15*

Submarine photography. J. E. Williamson. *II Illum Eng Soc 10:403-4 no 5 '15*

Submarine photography by aid of quartz lamps. *II Elec R & W Elec'n 66:1000 My 29 '15*

Photography in Industry

See also Photography—Reproduction of plans, drawings, etc.

Photography of projectiles

Photographing projectiles. C. Cranz, P. A. Günther, and F. Kulp. *II Sci Am S 79:204-5, 220-1 Mr 27-Apr 3 '15*

Photography of sound

Photographing speech; some recent investigations by Dr. Marage. J. Boyer. *II Sci Am 112:607-8 Je 19 '15*

Photokaleidograph

Apparatus for the production of kaleidoscopic pictures. *II Sci Am S 79:12-13 Ja 2 '15*

Photo-kaleidograph. *II Sci Am 112:103 Ja 30 '15*

Photometric analysis. See Nephelometry (photometric analysis)

Photometry

Approximate uniform photometric point-source. A. E. Kennelly, R. W. Chadbourn and G. D. Edwards. *diags Illum Eng Soc 10: 126-33 no 1 '15*

Calculation of illumination; description of method developed to overcome the difficulties encountered with indirect or semi-direct light sources. R. C. Powell. *Elec W 65:1463-4 Je 5 '15*

Characteristic equations of tungsten filament lamps and their application in heterochromatic photometry. G. W. Middlekauff and J. F. Skogland. *U S Bur Stand Bul 11:483-534 My 27 '15; Abstract. J Fr Inst 179:97-9 Ja '15; Excerpt. Illum Eng Soc 9:784-68; Discussion. 9:769-74 no 8 '14*

Photometry—Continued

- Choice of a group of observers for heterochromatic measurements. H. E. Ives and E. F. Kingsbury. *Illum Eng Soc* 10:203-8 no 3 '15
- Establishment of photometry on a physical basis. H. E. Ives. bibliog *il diags J Fr Inst* 180:409-36 O '15
- Experiments with colored absorbing solutions for use in heterochromatic photometry; with discussion. H. E. Ives and E. F. Kingsbury. *diags Illum Eng Soc* 9:795-813 no 8 '14; 10:253-8 no 3 '15
- Flicker photometer attachment for the Lummer-Brodhun contrast photometer. E. F. Kingsbury. *il diags J Fr Inst* 180:315-23 Ag '15; Same. *Am Gas Light J* 103:119, 122-3 Ag 23 '15
- Home-made portable equipment for photometer tests. *il Elec W* 66:873 O 15 '15
- Integrating sphere and arc lamp photometry; with discussion. N. K. Chaney and E. L. Clark. *Illum Eng Soc* 10:1-37 no 1 '15
- Integrating sphere equipped for testing gas-filled lamps. *il diag Elec W* 65:120 Ja 9 '15
- Light filters for use in photometry; with discussion. C. E. K. Mees. *Illum Eng Soc* 9:990-7 no 9 '14
- Method of correcting abnormal color vision and its application to the flicker photometer. H. E. Ives and E. F. Kingsbury. *Illum Eng Soc* 10:259-70 no 3 '15
- Methods of expressing brightness. J. R. Cravath. *Elec W* 64:1157-8 D 12 '14
- New form of flicker photometer. *Illum Engr* 8:462 N '15
- New illumination photometer. C. S. Redding. *il diag Elec W* 65:85-6 Ja 9 '15; *Elec R & W Elec'n* 66:220-1 Ja 30 '15
- New illuminometer. *Elec W* 65:74 Ja 9 '15
- New standard light source. L. A. Jones. *Am Gas Light J* 101:261-3 O 19 '14; Same. *Illum Eng Soc* 9:716-27; Discussion. 9:728-33 no 8 '14
- Optical properties of diffusing media. *Illum Eng Soc* 10:386-78 no 5 '15
- Ornamental street-lighting systems compared. H. E. Mahan and H. E. Butler. *il diags Elec W* 66:180-2 JI 24 '15
- Photometric units. P. G. Nutting. *Elec W* 65:332-3, 645 F 6, Mr 13 '15
- Photometry of gas-filled incandescent lamps; with discussion. C. H. Sharp. *il Illum Eng Soc* 9:1021-32 no 9 '14
- Photometry of gas-filled lamps. D. H. Tuck. *diags Elec W* 65:78 Ja 9 '15
- Photometry of incandescent lamps. J. W. Roper. *diags Am Gas Light J* 102:178-9 Mr 22 '15
- Photometry of lights of different colors; abstract. I. G. Priest. *Elec W* 66:185 JI 24 '15
- Photometry of the gas-filled lamp. G. W. Middlekauff and J. F. Skogland. *Elec W* 64:1248-51 D 26 '14
- Physical photometer in theory and practice. W. W. Coblentz. *diags J Fr Inst* 180:335-48 S '15
- Physical photometry. H. E. Ives. *diags Illum Eng Soc* 10:101-25 no 1 '15
- Physical photometry with a thermopile artificial eye; abstract. H. E. Ives and E. F. Kingsbury. *diag Elec W* 66:1100-1 N 13 '15
- Potassium photo-electric cells; a study of the relationship of illumination and current. H. E. Ives. *diags Sci Am S* 80:348-50, 362-3 N 27-D 4 '15
- Practical rating of electric incandescent lamps; with discussion. F. W. Willcox. *diags Illum Engr* 8:163-85 Ap '15
- Progress in photometry; committee report. *Illum Eng Soc* 10:550-6 no 7 '15; Same cond. *Am Gas Light J* 103:278 N 1 '15
- Proposals relative to definitions, standards and photometric methods. H. E. Ives. bibliog *Illum Eng Soc* 10:315-19 no 4 '15
- Proposed unit of brightness. *Elec W* 65:715 Mr 20 '15
- Rapid illuminometer exhibited before Chicago section. I. E. S. *diag Elec W* 65:170-1 Ja 16 '15
- Transmission and reflection photometer for small areas. P. G. Nutting and L. A. Jones. plan *Illum Eng Soc* 9:611-13 no 7 '14
- Unit of brightness. H. E. Ives. *Elec W* 65:460 F 20 '15
- Year's progress in illuminating engineering. *Illum Engr* 8:45-7 F '15
- Zero method with photo-electric cells; abstract. F. K. Richtmyer. plan *Elec W* 66:252 JI 31 '15

Photomicrography

- Equipment for sand photomicrography. *il Eng N* 74:240 JI 29 '15
- Improved apparatus for photomicrography of metals. *il Met & Chem Eng* 13:928-9 D 1 '15
- Mechanical features of the hydration of Portland cement and the making of concrete as revealed by microscopic study. N. C. Johnson. *il Am Soc M E J* 37:518-25; Discussion. 37:525-8 S '15
- Microscope opens new field in study of concrete. N. C. Johnson. *il Eng Rec* 71:98-102, 160-4, 191-7, 268-5, 301-3, 320-4 Ja 23, F 6-13, 27-Mr 13 '15
- Portraying the little things of nature. E. F. Bigelow. *il Sci Am* 113:360 O 23 '15
- Shells from European battlefields. *il Iron Age* 96:186-7 JI 22 '15
- Use of light filters with the tassin metallographic apparatus. F. H. Getman. *il diag J Ind & Eng Chem* 7:431 My '15

Photostat

- New reproducing machine. *il Iron Tr R* 56:1106-7 Je 3 '15
- Photostat and its use. L. D. Burlingame. *il Mach* 21:951-4 Ag '15

Phototelegraphy

- Electric transmission of pictures; abstract. J. Blondin. *diag Elec W* 65:479 F 20 '15
- Electrolytic luminosity for phototelegraphic receiver. L. H. Walter. *diag Elec W* 66:139 JI 17 '15
- Facsimile telegraphy and phototelegraphy. *Sci Am* 112:571-4 Je 5 '15
- Photographing speech; some recent investigations by Dr. Marage. J. Boyer. *il Sci Am* 112:607-8 Je 19 '15
- Telephotographic apparatus of Georges Rignoux. R. Arapu. *diag Sci Am S* 79:331 My 22 '15

See also Telephotography**Phototherapy**

- Artificial light treatment of surgical tuberculosis. *Sci Am S* 80:175-6 S 11 '15
- Uses of light in the treatment of disease. E. C. Titus. *Illum Eng Soc* 10:135-42 no 2 '15; Same. *Sci Am S* 79:255 Ap 17 '15; Discussion. *Illum Eng Soc* 10:142-8 no 2 '15

See also Radiotherapy**Phrenology**

- Relation of phrenology to the study of character. *Sci Am S* 80:354-5 D 4 '15

Physical examinations

- Chicago Elevated medical methods. H. E. Fisher. *il Elec Ry J* 45:1192-5 Je 26 '15
- Efficient human machine. *Sci Am* 113:334 O 16 '15
- Examining the physique of Chicago Elevated employees. H. E. Fisher. *il Elec Ry J* 46:216-19 Ag 7 '15
- How to keep your men healthy. S. C. Coey. *Iron Tr R* 56:389-90 F 13 '15
- Periodic physical examination of employees. E. L. Fisk. *Am Ind* 15:21-3 F; 22-3 Je '15
- Personal biologic examinations. G. M. Gould. *Sci Am S* 79:146-7 Mr 6 '15
- Physical control of employees. *Eng & Min J* 100:759 N 6 '15
- Physical examinations of section foremen. W. E. Schott. *Ry Age* 57:1147 D 13 '14
- Physician in industry; how the science of preventive medicine is minimizing accidents. S. M. McCurdy. *Iron Age* 95:401 F 13 '15; Same. *Sci Am S* 79:265 Ap 24 '15

Physical geography**See also Caves; Earth; Geology; Geysers****Physical laboratories**

- British national physical laboratory; abstract of annual report, electrical standards division. *Elec W* 66:187-8 JI 24 '15
- British national physical laboratory; program of research work for 1915-16. *Met & Chem Eng* 13:870-1 N 15 '15

Physical laboratories—Continued

Metallurgical work at the National physical laboratory 1914-1915. *Met & Chem Eng* 13: 533-5 S 15 '15
 National physical laboratory; abstract of annual report. *Engineer* 119:523-4 Je 25 '15

See also Electric laboratories

Physical measurements

Limits of experimental investigation. *Sci Am* S 80:83 Ag 7 '15

Measuring one twenty-millionth of an inch. *E. Kell. II plan Sci Am* 112:363-4 Ap 17 '15

Physics

Advances in general physics. *Sci Am* S 80: 130 Ag 28 '15

Physics of the photographic process. C. E. K. Mees. *diags J Fr Inst* 178:141-60 F '15; Abstract. *Met & Chem Eng* 13:923 D 1 '15

See also Air; Atoms; Capillarity; Chemistry, Physical; Compressibility; Dynamics; Evaporation; Fluids; Forge and energy; Gases; Hydraulics; Light; Liquid air; Magnetism; Mechanics; Radiation; Radioactivity; Steam; Temperature, High; Thermodynamics; Thermometers; Units

Physiological apparatus

Instrumental study of the heart. *II Sci Am* 112:630-1+ Je 26 '15

Physiological laboratories

Scientist and the athlete; the physiological laboratory of the French military school at Joinville. J. Boyer. *II Sci Am* S 79:292 My 8 '15

Piano player records

Machine for making player-piano rolls at home. *II Sci Am* 113:431 N 13 '15

Piano playing

Device for the simultaneous playing of violin and piano. *II Sci Am* 113:471 N 27 '15

Picketing

Washington's new anti-picketing law. *Iron Tr R* 57:915 N 4 '15

Pickling (metals)

Effects of pickling upon the corrosion of iron. E. A. Richardson. *Met & Chem Eng* 12:759 D '14; Same. *Iron Age* 95:621 Mr 18 '15

Meats pickling machines. *II Metal Ind n s* 13: 887 S '15

Removing iron scale by pickling; theory vs. practice. C. Hering. *Met & Chem Eng* 13: 785-6 N 1 '15

Picric acid

Explosion of picric acid. A. Cooper-Key. *Engineer* 119:155 F 12 '15

Synthetic phenol and picric acid. A. H. Ney. *Met & Chem Eng* 13:686-90 O 1 '15; Same. *Sci Am* S 80:346-7 N 27 '15

Pictures

See also Moving pictures

Piece work

Freight car repairs under a piece work system. J. J. Tolin. *Ry Age (Mech ed)* 89:247-8 J1 '15

Master blacksmiths' convention; discussion of piece work. *Ry Age (Mech ed)* 89:473 S '15

Modern piece work system for a large plating department. C. H. Felscher. *Metal Ind n s* 13:325-6 Ag '15

Modern plating practice; a piecework system as used by the National cash register company. W. Fraire. *II Metal Ind n s* 13:1-4 Ja '15

Piece rate system for wages in cotton mills. O. Elsas. *Textile World* 49:213-17 My '15

Piece work and bonus systems in the boiler shop. N. H. Ahlstruoh. *Ry Age (Mech ed)* 89:240-2 My '15

Piece work and its advantages. E. J. Thill. *Ry Age (Mech ed)* 89:122 Mr '15

Piece work for the paint shop. H. Heffelfinger. *Ry Age (Mech ed)* 89:526 O '15

Railway storekeepers' association; committee report. *Ry Age* 58:1043 My 21 '15

Special applications of the piece work system. H. F. Seward. *J Account* 20:122-3 Ag '15

Piers

Canadian Pacific terminal improvements at Vancouver. *II plan Ry Age* 58:614-16 Mr 19 '15

Connecticut shipping terminal at New London. W. E. Clarke. *II diags Eng N* 74:1028-32 N 25 '15

Covered slip and pier with gantry cranes for handling lumber. *diags Eng N* 74:494-5 S 9 '15

Crib-and-concrete guide pier at the Black Rock ship lock. *II diag Eng N* 73:541-2 Mr 13 '15

Design features of the Commonwealth pier no. 1, East Boston, Mass. *diags Eng & Contr* 43:170-2 Ag 19 '14

Freight handling at Havana, Cuba. *II Int Marine Eng* 30:116-18 Mr '15

Life of port structures. F. P. Whitham. *Eng N* 74:329 O 28 '15

New deep water pier at Halifax, Nova Scotia. A. F. Dyer. *II Concrete Cem* 7:7-13 J1 '15

Same cond. *Eng N* 73:1304-10 Je 24 '15

New York's new piers. *II diags Engineer* 120: 193-5, 204 Ag 27 '15

Ninth street pier in Lake Erie at Cleveland, Ohio. *II diags Eng N* 74:258-60 Ag 5 '15

Notable step in the building of New York's great piers. R. G. Skerrett. *II Sci Am* 113: 160-1 Ag 21 '15

Paving for piers, warehouses and garages. *plan Eng N* 73:953-4 My 13 '15

Philadelphia's Southwark piers completed. *II diags plans Eng Rec* 72:478-80 O 16 '15

Progress on 46th street pier coffer-dam, New York city. *II Eng N* 73:905 My 6 '15

Shipping piers in Southwark district of Philadelphia. *II diags plans Eng N* 74:421-4 Ag 26 '15

Suspended fenders a feature of new reinforced-concrete piers at San Francisco. F. G. White. *II diags Eng Rec* 71:231-3 F 20 '15

Work to start in deep cofferdam for New York pier. *II Eng Rec* 71:654-5 My 22 '15

See also Bulkheads; Wharves

Piers (bridges). *See* Bridges—Foundations and piers

Piers (foundations)

Large brick piers tested at laboratory of Bureau of standards; abstracts. J. H. Griffith and J. G. Bragg. *II Eng Rec* 71:460-1 Ap 10 '15; *Eng N* 74:242-3 Ag 5 '15; *Ind Eng* 15: 106 S '15

Piers, Municipal

Chicago municipal pier. *II diags Eng N* 74: 193-7 J1 29 '15

Longest municipal pier in United States is nearing completion at Chicago. *II diags Eng Rec* 71:778-80 Je 19 '15

Severe tests show Chicago municipal pier to be sound in construction. *II Eng Rec* 72:76 J1 17 '15

Superstructure of Chicago municipal pier. *II Eng N* 74:306-8 Ag 12 '15

Piles

1800 piles an hour; electrically operated machine. *II Elec W* 65:419 F 13 '15

Pig iron

Foundry iron prices Cincinnati and Chicago, 1876 to 1914. *Iron Age* 95:13 Ja 7 '15

Low carbon pig iron for iron castings. *Iron Age* 95:706-7 Ap 8 '15

Machines for breaking pig iron. *II Iron Tr R* 58:1069 My 27 '15

Pig-iron production in 1914. *Eng & Min J* 99:540 Mr 20 '15

Production of pig iron in the United States in the first half of 1915. *Iron Age* 96:369 Ag 12 '15; Same. *Iron Tr R* 57:324 Ag 12 '15

Properties of southern foundry pig iron. J. W. M'Queen. *Iron Age* 94:1294-5; Discussion. L. R. Lemolne. 94:1295-6 D 3 '14

See also Cast iron

Pig iron mixer

Modern foundry pig-iron mixer; operating and chemical results with blast-furnace and coke-oven gases; abstract. O. Simmersbach. *Iron Age* 98:312-13 O 7 '15

Pigments

Artistic painting and the old masters. M. Toch. *II J Fr Inst* 179:47-58 Ja '15

See also Dyes and dyeing; Paint

Pike's Peak

Build scenic highway up Pike's Peak. *II Eng Rec* 72:504-6 O 28 '15

Pile drivers

- Overhang piledriver. L. Goodday. *diag Eng N 73:399 F 25 '15*
 Piledriver with traversing leads for driving trestle bents. *II diag Eng N 73:28-9 Ja 7 '15*
 Raising a heavy 65-ft. piledriver. *II Eng & Contr 44:347-8 N 3 '15*
 Trestle building with easily moved pile driver. G. A. Eaton. *II Eng Rec 71:501 Ap 17 '15*

Pile driving. See Piles and pile driving**Pile pulling**

- Pile pulling methods compared. *II Eng Rec 71:277 F 27 '15*
 Pulling falsework piles. *II Eng N 73:553 Mr 18 '15*
 Pulling steel sheet piling with a steam hammer. W. F. Schaphorst. *Eng & Contr 43:217 Mr 10 '15*
 Pulling steel sheetpiles with an inverted steam hammer. *II Eng N 73:218-19 F 4 '15*

Pile testing

- Boston foundations. J. R. Worcester. *Boston Soc C E J 1:12-19 Ja '14; Discussion. 1:179-248, 395-417 Ap, S '14*
 Data on test borings and test piles at site of Field museum of natural history, Chicago. *II Eng & Contr 44:141-3 Ag 25 '15*
 Effect of steaming process of creosoting on strength of Oregon fir piling; abstracts. H. B. Macfarland. *Eng Rec 70:487-8 O 31 '14; Eng & Contr 42:481-3 N 18 '14; Summary. Eng N 72:863 O 29 '14*
 Jacking tests on piles. *Eng N 74:559 S 16 '15*
 Loading test of lagged piles in soft silt. C. W. Staniford. *II Eng N 74:76-7 Jl 8 '15*
 Pile tests indicate type of substructure for Technology buildings. C. T. Main. *II Eng Rec 72:235-8 Ag 21 '15*
 Results of experience with piles and pile tests. J. W. Taussig. *Eng N 72:1254-5 D 24 '14*
 Tests of piles in sand beach, Atlantic City, N. J. F. W. Abbott. *diag Eng N 74:28-30 Jl 1 '15*
 Tests on treated and untreated Oregon fir piling. *Ry Age 87:1156 D 18 '14*

Piles and pile driving

- Cement-coated piles repaired under water. *Eng Rec 72:674 N 27 '15*
 Data on test borings and test piles at site of Field museum of natural history, Chicago. *II Eng & Contr 44:141-3 Ag 25 '15*
 Explosives loosen hard ground for driving concrete piles; abstracts. F. T. James. *Eng N 74:568-9 S 16 '15; Eng Rec 72:240 Ag 21 '15; Eng & Contr 44:332-3 O 27 '15*
 Foundation piles cut off above water line. *Eng N 74:158 Jl 22 '15*
 Machine for boring under-water holes in piles. *II Eng N 74:815 Ag 13 '15*
 New deep water pier at Halifax, Nova Scotia. A. F. Dyer. *II Concrete Cem 7:7-13 Jl '15; Same cond. Eng N 73:1204-10 Je 24 '15*
 Piledriving destroys a tunnel by clay pressure. *II Eng N 74:404-5 Ag 26 '15*
 Pile-driving specifications. D: Gutman. *Eng Rec 71:784 Je 19 '15*
 Pile penetration with and without water jet. F. Y. Parker. *II Eng N 73:586-7 Mr 25 '15; Abstract. Assn Eng Soc J 64:159-67 Ap '15*
 Piles driven under difficulties. *II Eng Rec 71:213 F 13 '15*
 Pressures on piles supporting masonry. R. P. V. Marquadsen. *diags W Soc E J 20:541-7 Je '15; Same. Eng & Contr 44:392-3 N 17 '15*
 Special outrigger for driving piles under trestles. *II diags Eng N 72:1266 D 24 '14*
 Why not a rational specification for a wooden pile? H. P. Goodrich. *Eng Rec 71:627-8 My 15 '15; Same. Eng & Contr 43:456-7 My 19 '15*
See also Breakwaters; Concrete piling; Foundations; Pile drivers; Pile pulling; Pile testing

Pitdown man

- Mankind in the making. W. P. Pycraft. *II Sci Am 112:100-1 Ja 30 '15*

Pine

- Commercial uses of longleaf pine. P. L. Buttrick. *II Am For 21:396-908 S '15*

- Forest service proposes grading rule for southern yellow pine. *Eng Rec 72:55-6 Jl 10 '15*
 Growing pine at a profit. J. R. Simmons. *II Am For 21:1043-6 N '15*
 Life history of shortleaf pine. W. R. Mattoon. *diags 10 pls map U S Agric Bul 244:1-46 '15*
 Longleaf pine. *II Am For 21:895-6 S '15*
 Longleaf pine distinguished visually from loblolly or shortleaf. A. Koehler. *II Eng Rec 72:319-20 S 11 '15*
 Norway pine in the lake states. T. S. Woolsey, Jr. and H. H. Chapman. *II map U S Agric Bul 139:1-42 '14*
 Seed production of western white pine. R. Zon. *U S Agric Bul 210:1-16 '15*
 Specifications for yellow-pine bridge and trestle timbers. *Ry Age 59:67-8 Jl 9 '15*
 Story of white pine. H. Maxwell. *II Am For 21:34-46 Ja '15*
 Utilization and management of lodgepole pine in the Rocky mountains. D. T. Mason. *7 pls map U S Agric Bul 234:1-54 '15*
 Waste pine wood utilization. J. E. Teeple. *J Ind & Eng Chem 7:929-30 N '15*

Pine oil

- Oils of the coniferae. IV—The leaf and twig oils of digger pine, lodgepole pine, and red fir. A. W. Schorger. *J Ind & Eng Chem 7:24-6 Ja '15*
 Oleoresin of sand pine. A. W. Schorger. *J Ind & Eng Chem 7:321-2 Ap '15*

Pine-shoot moth

- Pine-shoot moth. *II Am For 21:637-40 My '15*

Pineapples

- Pineapple-canning industry of the world. J. A. Shriver. *U S Bur For & Dom Com 91:1-43 '15*
 Utilizing wastes in canning pineapples. *Sci Am S 79:351 Je 5 '15*

Pinions

- Gears and pinions. R. H. Dalgleish. *diags Elec Ry J 45:942 My 15 '15*
 Home-made pinion puller. C. M. Feist. *II Elec Ry J 46:641 S 25 '15*
 Points on the installation and removal of pinions. R. H. Parsons. *diags Elec Ry J 45:638-9, 674-5 Mr 27-28 Ap 3 '15*
 Removing pinions from motor axles. A. A. Ross. *Elec Ry J 45:800 Ap 24 '15*
 Test of power forcing press pinion. *Mach 21:770 My '15*
 Use of the gas flame in removing pinions. R. H. Parsons. *Elec Ry J 45:988 My 22 '15*

Pinite

- Inosite and pinite and some of their derivatives. E. G. Griffin and J. M. Nelson. *Am Chem Soc J 37:1552-71 Je '15*

Pipe. See Pipes**Pipe brackets**

- Convenient form of wall bracket for pipes. *II Elec W 66:979 O 30 '15*

Pipe cleaning

- Machine for cleaning ascension pipes. *diag Am Gas Light J 103:51 Jl 26 '15*
See also Water pipes—Cleaning

Pipe covering

- British method of coating steel pipes. W. Ing-ham. *Eng & Contr 44:315 O 20 '15*
 Covering protects large penstocks from freezing; cement-mortar coating supported by special steel frame around pipe and reinforced with wire mesh. H. C. Huber. *II diags Eng Rec 71:269 F 27 '15*
 Methods employed in field-coating two pipe lines—applying bitumastic enamel with special machines. *Eng & Contr 44:311-12 O 20 '15*
 Protection of riveted steel pipe. L. Metcalf. *Eng & Contr 42:598-9 D 30 '14*
 Tar paint proves better than lead paint on pipes. B. Dibble. *Eng Rec 72:349-50 S 18 '15; Same. Eng N 74:973-4 N 18 '15; Same cond. Eng & Contr 44:181 S 8 '15*
See also Steam pipe coverings

Pipe cutters

- Strickler ratchet pipe cutter. *II Munic Eng 49:158 O '15*

Pipe elbows

- Circle to ellipse offset transition piece. *diags Metal Work 84:616-17+ N 12 '15*

Pipe elbows—Continued

- Frictional losses in elbows and ducts. C. A. Fuller. *diags Metal Work* 84:371-2 S 17 '15
 Loss of pressure due to elbows in the transmission of air through pipes or ducts. F. L. Busey. *Am Soc Heat & V E* 19:366-76 '13
 Pattern for offset in ventilation pipe. *Metal Work* 83:571-3+ Ap 16 '15
 Patterns for compound curve elbow of copper. *diags Metal Work* 83:417-19 Mr 19 '15
 Patterns for sheet metal transforming elbow. *diags Metal Work* 83:357-8 Mr 6 '15
 Simple chart for designing furnace elbows. *Metal Work* 84:210-11 Ag 13 '15

Pipe fitting

See also Gas fitting; Pipe joints; Plumbing; Steam pipes

Pipe fittings

- Developing patterns for water pipe lateral. *diags Metal Work* 84:492-3 O 15 '15
 Pattern for angular bend of varying section. *diags Metal Work* 84:456-7 O 8 '15

See also Furnaces, Hot air—Pipes and fittings

Pipe flanges

- Institution of mechanical engineers discusses strength of pipe flanges. *Engineer* 119:102, 104 Ja 29 '15
 1915 U. S. standard schedule of flanged fittings and flanges. *Eng & Min J* 99:1121 Je 26 '15; Same. *Power* 41:782 Je 8 '15
 Progress of standard flange schedule. *Heat & Ven* 12:44-6 Ag '15
 Standardisation of pipe flanges and flanged fittings. J. Dewrance. *diags Engineer* 119:124-5 Ja 29 '15; Abstract. *Am Soc M E J* 37:189-90 Mr '15

Pipe hangers

- Various types of pipe hangers. H. L. Alt. *diags Dom Eng* 73:66-8, 100-2 O 16-23 '15

Pipe joints

- Acetylene welding of gas pipe. G. H. Manlove. *Il Iron Tr R* 56:272-3 F 4 '15; Abstract. *Ind Eng* 15:57-8 F '15
 Autogenous pipe welding. *Il Iron Age* 95:296-7 F 4 '15
 Ball joint for blow-pipe connection. *diags Metal Work* 83:394-5 F 19 '15
 Cast iron submarine aqueduct. *Il diags Engineer* 120:176-8, 180 Ag 20 '15
 Caulking lead joints with compressed air at Waltham, Mass. *Eng & Contr* 42:280-1 S 23 '14
 Cement instead of lead for pipe joints. *Eng N* 74:1047-8 N 25 '15
 Compounds for calking pipe joints. F. B. Hays. *Dom Eng* 72:170 Ag 7 '15
 Connecting cast-iron pipe sections under water. *Il Eng N* 74:896 N 4 '15
 Easily made expansion joint. W. A. McGee. *diags Power* 43:277 Ag 24 '15
 Economies of welded pipe connections. *Il Iron Age* 95:1289 Je 10 '15
 Experiences with leadite for jointing cast iron water mains. H. A. Symonds. *Eng & Contr* 44:247-8 S 29 '15
 Gas welding for pipe lines. J. F. Springer. *Il Munic J* 38:254-6 F 25 '15
 How to make good joints in cast iron water mains with leadite. W. C. Hawley. *Eng & Contr* 44:200-2 S 15 '15; Same cond. (Experiences in calking joints of water mains) *Eng Rec* 72:326 S 11 '15

- Joint details in high-head pipe lines—data on pipe lines throughout the world. L. C. Frohrieh. *Il Eng & Contr* 44:77-8 Jl 28 '15

- Joints for wrought-iron and steel pipe. R. S. Lord. *diags Eng N* 74:1035-7 N 25 '15

- Lead wool as jointing material; abstract. C. B. Reinicker. *Il Am Gas Light J* 102:242-6 Ap 19 '15; Abstract (Methods and cost of pneumatic calking of lead wool joints) *Eng & Contr* 43:520-2 Je 9 '15

- Leadite joints for water pipes; abstracts. H. A. Symonds; W. C. Hawley. *Munic J* 39:443 S 16 '15

- Leakage from lead joints; abstracts. A. H. Smith. *Munic J* 39:470-1 S 23 '15; *Eng & Contr* 44:313-14 O 20 '15

- Making a Van Stone joint under difficulties. *Il Power* 42:300-1 Ag 31 '15

- Mortar joint laid with canvas band in wet trench. D. H. Fleming. *diags Eng Rec* 72:240 Ag 21 '15

- Narrows flexible joint submarine siphon. J. P. Hogan. *Il diags plans Eng Rec* 70:656-9 D 19 '14

- Oxyacetylene welding in pipe work. W. L. Roueche. *Il Power* 41:808-11 Je 15 '15

- Pipe couplings. R. S. Lord. *diags Eng Soc W Pa* 31:417-37 Je '15; Excerpt. *Iron Age* 95:1352 Je 17 '15; Discussion. *Eng Soc W Pa* 31:438-58 Je '15

- Pipe joint fails by pulling out at elbow. *Il Eng Rec* 72:390 S 25 '15

- Pipe joint for very high pressure. *diags Am Gas Light J* 103:333 N 22 '15

- Pipe welding at Panama Pacific exposition. *Il Metal Work* 84:237-8 Ag 20 '15

- Plant and methods employed in laying the flexible-jointed Narrows siphon of the Catskill aqueduct. S. W. Symons. *Il Eng & Contr* 43:218-19 Mr 10 '15

- Present practice of gas distribution by British undertakings. W. Hole. *Il Am Gas Light J* 103:307-9 N 15 '15

- Pressed steel union of new design. *Il Iron Age* 95:1296 Je 10 '15

- Repairing leaks in flexible jointed water main in 40 ft. of water, Galveston harbor, Texas. N. T. Blackburn. *diags Eng & Contr* 42:163-4 Ag 12 '14

- Ross expansion joint. *diag Power* 41:375 Mr 16 '15

- Thermit welding. W. R. Hulbert. *Am Gas Inst Pro* 9:pt 2, 1182-4 '14

- Use of riveted or screw jointed pipe for submerged lines. C. Herschel. *Eng & Contr* 44:409-10 N 24 '15

- Water main under New York harbor from Brooklyn to Staten Island. J. F. Springer. *Il diag Munic Eng* 49:92-5 S '15

- Welding of high pressure mains. J. D. Shattuck. *Il diags Am Gas Inst Pro* 9:pt 2, 945-1011 '14; Same abr. *Am Gas Light J* 102:54-5, 58-60, 66-9 Ja 35-F 1 '15; Discussion. *Am Gas Inst Pro* 9:pt 2, 1011-53 '14

- Welding water and gas mains. *Il Sci Am* 112:272+ Mr 20 '15

- Wiping a lead-covered cable. H. E. Weightman. *Il Elec R & W Elec'n* 66:901-2 My 15 '15

Pipe laying

- Barge with skidway lays 300-ft. line of 12-in. pipe in five hours. A. G. Elliot. *Il Eng Rec* 72:611 N 13 '15

- Cast iron submarine aqueduct. *Il diags Engineer* 120:176-8, 180 Ag 20 '15

- Conditions encountered and methods employed in laying water pipes in the congested streets of New York city. M. Blatt. *Eng & Contr* 44:246-7 S 29 '15

- Connecting cast-iron pipe sections under water. *Il Eng N* 74:896 N 4 '15

- Field and office methods in connection with the laying and repair of large water mains at San Diego, Calif. W. W. Albin. *Eng & Contr* 43:26-7 Ja 13 '15

- Flexible bronze tubing of the Partridge Island pipe line. *Il diag Eng N* 73:107-8 Je 17 '15

- Same cond. *Am Gas Light J* 103:42 Jl 19 '15

- 48-inch cast iron force main for Atlantic City, New Jersey. L. Van Gilder. *Il Am Water Works Assn J* 1:704-8 D '14; Same. *Eng & Contr* 43:77 Ja 27 '15

- Installation and maintenance of services. R. B. Duncan. *Il diags Am Gas Inst Pro* 9:pt 2, 1052-1161; Discussion. 9:pt 2, 1161-82 '14

- Laying a 6-ft. pipe tunnel across the Milwaukee river. *Il diags Eng N* 73:522-4 Mr 18 '15

- Laying a submerged sewer outlet at San Francisco. A. J. Cleary. *Il Eng N* 73:325 F 18 '15

- Laying and repairing water mains. W. W. Albin. *Metal Work* 84:102 Jl 23 '15

- Laying submerged outfall sewer in surf. A. J. Cleary. *Il Eng N* 74:413-14 Ag 26 '15

- Laying water main in tunnel to avoid frozen ground. A. Cohn. *Eng N* 73:891-2 My 6 '15

- Limits of precision in laying submerged water mains. D. D. Clarke. *Eng & Contr* 44:76 Jl 28 '15

- Lowering a submarine pipe by piledrivers. *Il diag Eng N* 72:1264 D 24 '14

- Lowering mains under pressure and cost of laying water mains at San Diego. *Il Eng & Contr* 42:419-20 O 28 '14

Pipe laying—Continued

- Manufacturing and laying reinforced concrete sewer pipe at Philadelphia. *Eng & Contr* 43:245-7 Mr 17 '15
- Method and cost of constructing a 6-mile water main of 3-in. screwed pipe, for New Orleans Lake Shore land co. A. M. Shaw. *Eng & Contr* 43:222 Mr 10 '15
- Method employed in lowering water intake pipe through ice at Gilbert, Minn. A. Cohn. *diags Eng & Contr* 44:81 Ag 4 '15
- Moving a 30-in. gas main. R. J. Van Wagner. *Eng N* 74:1082 D 2 '15
- Narrows flexible joint submarine siphon. J. P. Hogan. *diags plans Eng Rec* 70:656-9 D 19 '14
- Oneida street crossing under Milwaukee river. *plan Eng Rec* 70:616-17 D 5 '14
- Placing a jointed concrete pressure pipe inside a brick tunnel for water supply, Baltimore. *diags Eng N* 73:600-2 Mr 25 '15
- Protection of pipes when buried under the floor. *diag Elec W* 66:592 S 11 '15
- Pushing service pipes under pavements. F. C. Amsbury. *Am Water Works Assn J* 1:719 D 14 '14
- River crossings on the Nepaug pipe line. E. C. Miles. *diags Eng N* 73:249-51 F 25 '15
- Rush work after storm restores Galveston's water supply and rail connections. E. B. Van De Greyn. *Eng Rec* 72:500-1 O 28 '15
- 7000-foot pipe line floated to place in Lake Ontario in long sections. N. A. Brown. *diags Eng Rec* 72:20-1 J 1 '15
- Subaqueous pipe taken up and replaced 3 feet lower. E. M. Blake. *Eng Rec* 72:69-70 J 17 '15
- Three types of bridge for carrying gas mains across subway cuts. *Eng Rec* 72:207 Ag 14 '15
- Use of riveted or screw jointed pipe for submerged lines. C. Herschel. *Eng & Contr* 44:409-10 N 24 '15
- Water main under New York harbor from Brooklyn to Staten Island. J. F. Springer. *diags Munic Eng* 49:92-5 S '15
- Welding of high pressure mains. J. D. Shattuck. *Am Gas Inst Pro* 9:pt 2, 994-1006 '14; Same cond. *Am Gas Light J* 103:87-8 F 1 '15
- See also* Pipe lines; Street openings
- Cost**
- Comparative costs of laying 16- and 12-ft. pipe. *Eng N* 74:318 Ag 12 '15
- Comparison of actual cost of laying 6-in. cast iron water pipe in 12 and 16 ft. lengths at Council Bluffs, Iowa. *Eng & Contr* 44:161 S 1 '15
- Cost of laying cast iron water pipe for railway service. C. R. Knowles. *Eng & Contr* 43:383 O 21 '14
- Costs of 12- and 16-ft. lengths of cast-iron pipe laid. F. C. Roberts. *Eng N* 74:841 S 30 '15
- Ten and three-quarters miles of 36-inch riveted-steel pressure line built on Sooke work. B. Ehle. *diags Eng Rec* 72:564-5 N 6 '15
- Pipe lines**
- Color scheme for identifying pipe lines. *Elec W* 65:936-7 Ap 10 '15
- Comparative merits of four types of location of underground utility lines. L. A. Dumond. *Eng & Contr* 44:357-9 N 3 '15
- Crossing water pipes over trolley wires. G. H. McKelway. *diags Elec Ry J* 46:770-1 O 9 '15
- Data on the life of wooden pipe pertaining to 79 pipe lines. D. C. Henny. *tables Eng & Contr* 44:127-30 Ag 18 '15; Same. *Eng N* 74:400-3 Ag 26 '15
- Design and construction features of Chicago's first utilities gallery. *diags Eng & Contr* 44:376-7 N 10 '15
- Hauling heavy water pipes. E. C. Miles. *diags Munic J* 38:97-9 Ja 28 '15
- Insulation of underground piping. *Elec R & W Elec'n* 67:194 J 31 '15
- Joint details in high-head pipe lines—data on pipe lines throughout the world. L. C. Frohrieb. *Eng & Contr* 44:77-8 J 28 '15
- Lightning attraction for water and gas pipes. H. W. Spang. *Eng & Contr* 44:340 O 27 '15
- Method and cost of making a relocation survey of underground pipe lines. O. E. Carr. *plans Eng & Contr* 42:153-5 Ag 12 '14; Same cond. (Underground survey of Cincinnati). *Eng Rec* 71:38-40 Ja 4 '15
- Method of protecting water lines from freezing. *diags Elec W* 66:920 O 23 '15
- Methods employed in field-coating two pipe lines—applying bitumastic enamel with special machines. *Eng & Contr* 44:311-12 O 20 '15
- Pipe pontoon used for reclaiming pipe line in bed of Ottawa river. *Eng Rec* 71:755-6 Je 12 '15
- Pipe subways for the public utilities of Chicago. L. A. Dumond. *Eng Rec* 70:705-6 D 26 '14
- Practical procedure in designing steel penstocks. V. P. Marran. *diags Eng Rec* 71:355-6 Mr 20 '15
- Progress map records accurately water-main construction. *Eng Rec* 71:566 My 1 '15
- Protection of pipe lines against alkali. C. P. Bowle. *Eng & Min J* 99:367 F 20 '15
- 7000-foot pipe line floated to place in Lake Ontario in long sections. N. A. Brown. *diags Eng Rec* 72:20-1 J 1 '15
- Steam-pipe installation; two old boiler plants piped to give a common steam supply. H. E. Collins. *diags Power* 41:288-91 Mr 2 '15
- Subways for public-utility pipes and wires in Chicago streets. *Eng N* 73:60-1 Ja 14 '15; Same. *Am Gas Light J* 102:76 F 1 '15
- Underground pipes in New York city streets. *Eng N* 74:250-1 Ag 5 '15
- See also* Electrolytic corrosion; Gas distribution; Gas pipe lines; Petroleum pipe lines; Pipe laying; Pipes, Steel; Steam pipes; Street openings; Water pipes; Water supply engineering
- Law**
- United States mining statutes annotated. J. W. Thomson. *U S Bur Mines Bul* 94:pt 2, 1068-73 '15
- Pipe lining**
- Method of lining wrought, steel and cast iron pipe with cement. *diag Eng & Contr* 42:547-8 D 9 '14
- Pipe thawing.** *See* Thawing
- Pipe threading machines**
- Convenient control for Crane company pipe machine. *diags Iron Tr R* 57:691 O 7 '15
- Landis pipe threader and cutter. *diags Iron Tr R* 57:266 Ag 5 '15; *Iron Age* 96:291 Ag 5 '15; *Mach* 31:1020-1 Ag '15
- Ratchet stock of, novel design. *diags Iron Tr R* 57:691 O 7 '15
- Pipe threads**
- Pipe threading die for screw machines. *diags Iron Age* 96:183 Ja 31 '15
- Protector for threaded ends of pipe. *diags Iron Age* 96:137 J 15 '15; *Iron Tr R* 57:138 J 15 '15
- Piperonal**
- Condensation of vanillin and piperonal with certain aromatic amines. A. S. Wheeler. *Am Chem Soc J* 37:1362-4 My '15
- Pipes**
- American pipe and fittings in South Africa. *Iron Age* 96:1230-1 N 25 '15
- Apparatus for making accelerated comparative durability tests of small pipe. *diags Eng & Contr* 43:582 Je 30 '15; *Eng N* 74:25 J 1 '15
- Electrolytic corrosion in pipes. *Metal Work* 84:302 S 3 '15
- External corrosion of cast iron pipe; abstracts. M. R. Pugh. *Munic J* 37:424-5 S 24 '14; *Am Soc M E J* 36:0189 O '14; *Eng & Contr* 42:377-81 O 21 '14; *Am Gas Light J* 103:65-70 Ag 2 '15
- Patterns for offset Y from circular pipe. *diags Metal Work* 84:67-9 J 16 '15
- Proportioning pipes. T. Taft. *Dom Eng* 72:198 Ag 14 '15
- Rules for thickness of cast-iron pipes. *Power* 42:115 J 27 '15
- Rules for thickness of wrought-iron and steel pipes. F. R. Björling. *Power* 42:142 Ag 3 '15
- Rules for weight of cast-iron pipes. *Power* 41:425 Mr 30 '15

Pipes—Continued

- Simple test for ascertaining whether pipe is of wrought iron or steel. D. R. Gwinn. Eng & Contr 44:411 N 24 '15
- Simple tests for identifying steel and wrought iron pipe. Eng & Contr 44:295 O 13 '15
- Simplified graphical or analytical process for the determination of dimensions of pipes in ventilating and heating installations; abstract. Brabbée and Bradtke. Am Soc M E J 37:552-3 S '15
- Standard wrought pipe bends. diag Power 42:546 O 19 '15
- Wrought-iron or steel pipes? L. C. Wilson. Eng M 50:247-54 N '15
- See also Air pipes; Gas pipes; Heating pipes; Hot water heating; Oil piping; Pipe laying; Pipe lines, and other headings beginning Pipe; Piping (power plants); Plumbing; Sewer pipes; Siphons; Steam pipes; Tubes; Water pipes

Exhibitions

- Panama-Pacific exposition. 11 Power 42:586-8 O 26 '15

Repair

- Repairing leaks and breaks. J. E. Noble. diag Power 40:818 D 8 '14; Same. Eng & Min J 98:1099 D 19 '14

Specifications

- Proper specifications for and inspection of interior gas piping. A. E. Turner. Am Gas Inst Pro 8:pt 2, 1811-26 '14; Same (Standardizing gas piping specifications) Metal Work 82:764-7 D 11 '14; Discussion. Am Gas Inst Pro 9:pt 2, 1327-37 '14
- Steel and iron pipe specifications. Iron Tr R 57:44-5 J 1 '15

Pipes, Concrete

- Casting concrete pipe out of doors in winter at Hamilton, Ontario. A. F. Macallum. 11 Concrete Cem 7:174 N '15
- Collapsible core for reinforced concrete pipe construction. diag Concrete Cem 5:238 D '14
- Concrete culvert pipe and concrete piles. Ry Age 69:762-3 O 22 '15
- Construction of the Sooke gravity flow line at Victoria, B. C. 11 Concrete Cem 6:299-300 Je '15
- Holds pipe reinforcement while wiring is being done. 11 Eng Rec 71:785 Je 19 '15
- Load tests of concrete pipe. E. R. Conant. 11 Eng N 74:556-7 S 16 '15
- Manufacture of concrete sewer pipe. 11 Metal Work 82:833-4 D 25 '14
- Manufacturing and laying reinforced concrete sewer pipe at Philadelphia. 11 Eng & Contr 43:245-7 Mr 17 '15
- Parmley system of reinforced concrete arch construction. 11 diag Munic J 38:710 My 20 '15
- Placing a jointed concrete pressure pipe inside a brick tunnel for water-supply, Baltimore. 11 diag Eng N 73:800-2 Mr 25 '15
- Popularity of concrete pipe is increasing. C. E. Sims. Concrete Cem 7:36 J1 '15
- Pressure test shows little leakage from huge molded concrete pipe. 11 Eng Rec 72:537-8 O 30 '15
- Reinforced-concrete pipes replace girder bridge. 11 diag Eng Rec 71:688 My 29 '15
- Severe test of concrete pipe joint. 11 Concrete Cem 7:191 N '15
- Tests of circular and egg-shaped reinforced concrete sewer pipe. A. T. Goldbeck. 11 diag Eng & Contr 45:807-9 Ap 7 '15; Same, with table. Concrete Cem 6:232-5 My '15; Same (Reinforced-concrete sewer pipe tested for stiffness and impermeability) Eng Rec 71:711-12 Je 5 '15
- Tests of some large reinforced concrete culvert pipe. W. J. Schlick. 11 diag Concrete Cem 6:78-80 F '15
- Virgin country renders concrete pipe line construction difficult. B. Ehle. 11 diag plan Eng Rec 72:507-10 O 23 '15

Pipes, Furnace. See Furnaces, Hot air—Pipes and fittings

Pipes, Gas. See Gas pipes

Pipes, Sewer. See Sewer pipes

Pipes, Steel

- Corrosion of iron and steel pipe. W: A. Dunkley; J. E. Noble. Power 41:584-5 Ap 27 '15
- Corrugated shell for pressure pipe. 11 Iron Age 96:15 J1 1 '15
- Making pipes in India. Metal Work 82:767-8 D 11 '14
- Manufacture of steel pipe. 11 Colliery 85:333-4 Ja '15
- Movable bulkhead for testing steel pipe line in sections after erection. diag Eng & Contr 44:317 O 20 '15
- Practical procedure in designing steel penstocks. V. P. Marran. 11 diag Eng Rec 71:355-6 Mr 20 '15
- Protection of riveted steel pipe. L. Metcalf. Eng & Contr 42:598-9 D 30 '14
- Rapid rise of steel pipe. Eng M 48:sup1-2 Ja '15
- Rise of steel pipe. Ry R 56:88 Ja 9 '15
- Ten and three-quarters miles of 36-inch riveted-steel pressure line built on Sooke work. B. Ehle. 11 plan Eng Rec 72:564-5 N 6 '15

Pipes, Water. See Water pipes

Pipes, Wood

- Constructing logarithmic charts for hydraulic formulas. L. G. Hall. Eng & Contr 44:31-2 J1 14 '15
- Costs of continuous wood stave pipe lines. S. O. Jayne. Eng & Contr 44:56-7 J1 21 '15
- Data on the life of wooden pipe pertaining to 79 pipe lines. D. C. Henny. tables Eng & Contr 44:127-30 Ag 13 '15; Same. Eng N 74:400-3 Ag 26 '15; Excerpt. Eng Rec 72:162 Ag 7 '15; Excerpt. Eng & Min J 100:476 S 13 '15
- Decay of wood pipes. Eng Rec 71:110 Ja 23 '15
- Durability of wood pipe and factors affecting it. S. O. Jayne. Eng & Contr 44:19-21 J1 7 '15
- Economic considerations justify wood-stave pipe for water-power penstocks; comparison with steel. R. E. Horton. Eng Rec 71:356-8 Mr 20 '15
- Experiences with machine banded wooden water pipe in New Hampshire; abstracts. A. W. Dudley. 11 Eng & Contr 44:323-4 S 22 '15; Munic J 39:471-2 S 23 '15
- Laying wood-stave pipe to replace steel pipe. 11 Eng N 74:1085 D 2 '15
- New Chittenden, Vt., plant of the Pittsford power co. T. Fraher. 11 Eng N 74:14, 16 J1 1 '15
- Use, design, construction, cost and durability of wooden stave pipe. A. Swickard. 11 diag Eng & Contr 42:422-4, 516-19; 43:10-14, 146-8, 483-6 N 4, D 2 '14, Ja 6, F 17, Je 2 '15
- Values of n for wood stave pipe. S. O. Jayne. Eng & Contr 44:60 J1 21 '15
- Wood pipes in New Hampshire. A. W. Dudley. 11 Munic J 39:471-2 S 23 '15

Pipets

- Convenient weighing pipet. F. Hall. diag Am Chem Soc J 37:2062-3 S '15
- Modified burette calibrating pipette and certain points in the use of such instruments. C. W. Fouk. diag J Ind & Eng Chem 7:689-93 Ag '15

Pipettometers

- Description of a pipettometer. W. D. Frost. diag Am Chem Soc J 36:1785-7 Ag '14

Piping (power plants)

- Cumberland Edison power plant. W. O. Rogers. 11 plans Power 42:707 N 23 '15
- New Morrison hotel plant. Chicago. T: Wilson. plan Power 42:71-3 J1 20 '15
- New Penn Central power co.'s Williamsburg plant. W. O. Rogers. 11 plans map Power 42:570-8 O 26 '15
- Pipes for steam engines. F. W. Salmon. Power 41:88 Ja 19 '15
- Piping and supports in municipal plant. A. D. Williams. 11 diag Power 41:463-5 Ap 6 '15
- Power piping society has produced a standard power plant piping specification. Iron Age 96:388 Ag 12 '15
- Savage manufacturing co.'s power plant, Savage, Md. W. O. Rogers. 11 plans Power 42:88-43 J1 13 '15
- Steam-pipe installation; two old boiler plants piped to give a common steam supply. H. E. Collins. 11 diag Power 41:288-91 Mr 2 '15
- Steam piping. Power 41:443-4 Mr 30 '15
- See also Steam pipes

Piqua, Ohio

Railroads

Pennsylvania improvements through Piqua; new station and second track on revised grade, eliminating eight street grade crossings. *Il plans Ry Age* 58:1003-6 *My* 14 '15

Pistols

Development of the army pistol. *E: C. Crossman. Il Sci Am* 113:288 *O* 2 '15
Sweep-milling and shaving operations on pistol frames. *Il diag Mach* 21:686-7 *Ap* '15

Piston rings

A. C. A. makes two certified tests. *Horseless Age* 35:122 *Ja* 20 '15
A. C. A. tests tireseal and multiple rings. *Automobile* 32:110+ *Ja* 21 '15
Burd high-compression rings. *Il Power* 42:652 *N* 9 '15
Facing piston rings. *A. F. Mansberger. diags Mach* 22:60 *S* '15
Ford methods and the Ford shops. *H. L. Arnold. Il Eng M* 48:715-21 *F* '15
Machining a piston ring. *G. Strom. diags Power* 41:353-4; 42:203 *Mr* 9, *Ag* 10 '15
Machining a piston ring. *H. R. Low. Power* 42:312-13 *Ag* 31 '15
Machining a piston ring. *S: L. Robinson. Il Power* 42:24-5 *Jl* 6 '15
Mixture for piston rings. *W. J. Keep. Foundry* 43:240 *Je* '15
Piston ring problems. *A. J. Mummert. Automobile* 32:624-5 *Ap* 8 '15
Piston ring problems—faults and advantages of various sorts of ring. *C. H. Endebrock. Automobile* 32:364-5 *F* 25 '15
Steel piston rings. *Mach* 21:827 *Je* '15

Pistons

Advantages of sand-cast pistons. *W. M. Levett. Automobile* 33:378-9 *N* 11 '15
Allowances for gas engine piston fits: abstracts. *E. W. Weaver. Mach* 21:491 *F* '15; *Horseless Age* 35:110-11 *Ja* 20 '15; *Power* 41:245 *F* 16 '15
Aluminum alloy piston. *J. E. Diamond. Il diag Automobile* 33:551-2 *S* 23 '15
Aluminum alloy pistons. *E. Gruenwald. Horseless Age* 35:806+ *Je* 16 '15
Aluminum piston critics answered. *J. Leopold and J. E. Diamond. Automobile* 33:744-5 *O* 21 '15
Aluminum piston will never prove success in truly high-duty motor. *F. R. Porter. Automobile* 33:420-1 *S* 2 '15
Aluminum pistons. *Horseless Age* 36:326 *O* 1 '15
Aluminum pistons pass unchallenged. *Automobile* 32:1116-17 *Je* 24 '15
American alloys best. *J. Leopold. Automobile* 33:969 *N* 25 '15
Analyzing heat flow; use of aluminum for automobile motor construction. *E. H. Sherbondy. Automobile* 33:884-5 *N* 4 '15
Chuckling ring and jaw extension for turning pistons. *H: Doren. diag Mach* 21:1010 *Ag* '15
Cracked and seized pistons on Diesel engines. *G: E. Windeler. diags Power* 42:210-11 *Ag* 10 '15; *Abstract. Int Marine Eng* 20:416 *S* '15
Early days of aluminum pistons. *J. Leopold. Automobile* 33:650-1 *O* 7 '15
Ford methods and the Ford shops. *H. L. Arnold. Il Eng M* 48:711-15 *F* '15
Light pistons make smooth motor. *E. W. Walford. diags Automobile* 32:362-3 *F* 25 '15
Making aero motor pistons: tool equipment used on Cleveland automatics. *D. T. Hamilton. Il diags Mach* 21:300-2 *D* '14
Old piston used for a core box. *A. F. Albert. diags Mach* 21:748 *My* '15
Overcoming the slap of aluminum pistons. *P. M. Heldt. Horseless Age* 36:227-8 *S* 1 '15
Piston practice; present day design with special reference to aluminum alloy. *J. E. Diamond. Il diags Automobile* 33:871-7 *N* 11 '15; *Discussion. 33:921-4 N* 18 '15
Predicts adoption of aluminum pistons as standard by majority of cars. *W. M. Levett. Automobile* 33:421+ *S* 2 '15
Prefers iron or steel to aluminum. *E. H. Sherbondy. Automobile* 33:651-2 *O* 7 '15
Rolled and forged steel pistons. *W. W. Scott, Jr. Il diags Ry R* 56:48-52 *Ja* 9 '15; *Same cond. Ry Age (Mech ed)* 89:343-5 *Jl* '15; *Abstract. Am Soc M E J* 37:191-2 *Mr* '15
Watch your pistons! *Old Scotch. Int Marine Eng* 20:407 *S* '15

Pitch filler. See Pavements—Fillers

Pitchblende

Pitchblende of Cornwall, England. *R. A. F. Penrose, Jr. Econ Geol* 10:161-71 *F* '15

Pitchometer

Pitchometer and its use. *N. I. Mosher. diag Mach* 21:923 *Jl* '15

Pitometer

Graphic recorder for the Cole pitometer. *Il diags Eng N* 73:875 *My* 6 '15
Increasing precision in pitometer survey work at Washington, D. C.—meter reading. *Eng & Contr* 43:26 *Ja* 13 '15
Rating a pitometer. *C. G. Gillespie. Il Eng Rec* 72:144 *Jl* 31 '15
Water waste surveys in the District of Columbia. *P. Lanham. Il Eng & Contr* 43:275-6 *Mr* 24 '15

Pitot tube

Gas volume and dust concentration determination in connection with the Cottrell process. *W: N. Drew. diags Am Soc M E J* 37: 676-8 *D* '15
Standardization of the use of the Pitot tube: report of committee. *diags Am Soc Heat & V E* 20:210-15 '14

See also Pitometer

Pittsburgh, Pennsylvania

Architecture

Masonic temple, Pittsburgh. *Il Arch & Bldg* 47:289-94 *Ag* '15

Bridges

Construction features of the Bloomfield bridge. *A. El. Sortore. Il Eng & Contr* 43:6-8 *Ja* 6 '15
Design features of the cantilever, simple-truss and girder spans of the Bloomfield bridge. *diags Eng & Contr* 42:240-3 *S* 9 '14
Design features of the substructure and approaches of the Bloomfield bridge. *diags Eng & Contr* 42:295-7 *S* 23 '14
Design of the 531-ft. truss spans of the North side Point bridge. *diags Eng & Contr* 41: 358-61, 684-5; 42:196-3 *Mr* 25, *Je* 17, *Ag* 25 '14

Parks

Schenley park approach competition. *C. F. Pilat. Il plan Arch Rec* 38:595-9 *N* '15

Railroads

New freight and transfer station by Pennsylvania R. R. *Il Ry R* 56:278-80 *F* 27 '15

Rapid transit

Pittsburgh railways claim department. *Elec Ry J* 46:139-45, 436-41 *Jl* 24, *S* 11 '15

Water supply

Construction features of the North side reservoir. *E. E. Lanpher and J. S. Cole. Il Eng Soc W Pa* 30:669-86 *O* '14; *Same. Eng & Contr* 42:577-9 *D* 23 '14; *Same cond. Munic J* 38:558-62 *Ap* 22 '15; *Discussion. Eng Soc W Pa* 30:686-92 *O* '14
Design and construction of the North side reservoir. *Il diags plan Concrete Cem* 6:227-31 *My* '15
Interesting chart of Pittsburgh water system, showing its recent transformation. *diag Eng N* 73:250-1 *F* 11 '15

Pittsburgh University. Mellon Institute

Dedication of the new building of the Mellon Institute. *W. A. Hamor. Il J Ind & Eng Chem* 7:326-8 *Ap* '15; *Same cond. Met & Chem Eng* 18:266-7 *Ap* '15
Description of the new building of the Mellon Institute. *W. A. Hamor. Il plans J Ind & Eng Chem* 7:333-43 *Ap* '15
Object and work of the Mellon Institute. *R. F. Bacon. J Ind & Eng Chem* 7:343-7 *Ap* '15
Research Institute; Mellon laboratories are fully equipped for solving manufacturing problems. *C. F. Williams. Il Iron Tr R* 58:768-9 *Ap* 15 '15
Research work at the University of Pittsburgh. *S: R. Scholes. Foundry* 43:237 *Je* '15
Unique system of service to industry. *J: J. O'Connor. Il Am Ind* 16:27-8 *O* '15

Pituitary gland

On the presence of histidine-like substances in the pituitary gland (posterior lobe). T. B. Aldrich. *Am Chem Soc J* 37:203-8 Ja '15
Therapeutic uses of preparations of the ductless glands. R. G. Torrey. *Sci Am S* 80:134 Ag 28 '15

Placer mining. See **Hydraulic mining**

Plague

See also **Rat proofing**

Plainfield, New Jersey

Sewerage

Operation of the Plainfield sewage-works. J. R. Downes. *Eng N* 73:234-5 F 4 '15

Plancton. See **Plancton**

Plane table. See **Topographical drawing**

Planimeters

Improved rolling hatchet planimeter. F. W. Salmon. *diag Power* 42:122 Jl 27 '15
Polar planimeter. S. B. Redfield. *Power* 42:619-20 N 2 '15
Recording power plant operations. J. C. Smallwood. *Eng M* 50:386-9 D '15

Planing

Planing a block square. H. Murphy. *diag Mach* 21:495 F '15

Planing machines

Building rotary planing machines. *Iron Age* 94:1440-2 D 24 '14
Gleason 30-foot herringbone and spur gear planer. *diag Mach* 21:503-5 F '15
Handling large work on a small planer. J. Leafstrom. *diag Mach* 22:80 S '15
Home-made planer used to size large timbers on the job. R. W. Cady. *Eng Rec* 72:396 S 25 '15
Motor driven slide plate planer. *Iron Tr R* 56:269-70 F 4 '15; *Ry Age (Mech ed)* 89:95 F '15
Scientific American and the planing mill monopoly. *Sci Am* 112:546 Je 5 '15
16-ft. four-head planing machine. *Iron Age* 96:131-2 Jl 16 '15
Turret head for planing guides, shoes and wedges. B. O. Yearwood. *Eng Rec (Mech ed)* 89:187 Ap '15
See also **Machine tools**

Plancton

Plancton, the ultimate food. *Sci Am S* 79:66 Ja 30 '15

Plans (architecture). See **Architectural drawing**;
Architecture—Designs and plans;
Architecture, Domestic—Designs and plans

Plant breeding

Artificial production of vigorous trees. *Sci Am S* 79:150 Mr 6 '15
Experiments in hybridizing Japanese flowers. W. P. Jenny. *Sci Am S* 79:18-19 Ja 9 '15

Plantations, Railroad. See **Railroads—Plantations**

Plants

Promoting the growth of vegetation on the slopes. W. F. Rench. *Ry Age* 58:471-2 Mr 12 '15

See also **Insectivorous plants**

Movements

See **Heliotropism**

Temperature

Temperature in plants. S. L. Bastin. *Sci Am* 112:54 Ja 9 '15

Plants, Chemical analysis of

Modified method for determining carbon-free ash in plant substances. G. E. Boltz. *J Ind & Eng Chem* 7:859-60 O '15
Total amino nitrogen in the seedlings of the Alaska pea. T. G. Thompson. *Am Chem Soc J* 37:230-5 Ja '15

Plants, Effect of narcotics on

How narcotics affect plants. *Sci Am S* 79:267 Ap 24 '15

Plants, Effect of radioactive substances on

Influence of radio-active earth on plant growth. H. H. Rusby. *Sci Am S* 79:216-18, 228-30 Ap 3-10 '15

Radio-active ores and plant life. H. Bastin. *Sci Am* 112:335 Ap 10 '15

Plants, Insectivorous. See **Insectivorous plants**

Plants, Irritability and movements of

Plant autographs and what they mean. *Sci Am* 112:253-4 Mr 13 '15
Scientific work of Prof. J. C. Bose. J. Kunz. *Sci Am S* 79:291 My 8 '15
Testing the sensibility of plants. J. C. Bose. *Sci Am S* 79:244-6 Ap 17 '15

Plants, Poisonous. See **Poisonous plants**

Plaster and plastering

Bonding plaster coating to interior walls and ceilings. *Concrete Cem* 6:36-7 Ja '15

See also **Stucco**

Plaster casts

Making the models and molds for ornamental concrete work—using plaster and gelatin. *Concrete Cem* 6:150-1 Mr '15
Use of glue molds under serious difficulties: reproduction of monuments at Quirigua. N. M. Judd. *Concrete Cem* 6:151-4 Mr '15; Same. *Sci Am S* 80:58-7 Jl 24 '15

Plaster of Paris

How to use plaster of Paris. D. Gordon. *Foundry* 43:51 F '15

Plastering. See **Plaster and plastering**

Plasticity

Atterberg plasticity method. C. S. Kinnison. *U S Bur Stand Tech Pa* 46:1-18 '15

Filing system in the chemistry of amorphous substances. W. K. Lewis. *Met & Chem Eng* 13:921 D 1 '15

Plasticity of clay and its relation to mode of origin. N. B. Davis. *Am Inst Min E Bul* 98:301-30 F '15

Plate printing

Linotype slugs used as plate base. *Inland Ptr* 56:400 D '15
Making the plates for a modern newspaper perfecting press. A. W. Birdsall. *Inland Ptr* 54:551-3 Ja '15
Reverse plate—its advantage to the printer. J. L. Frazier. *Inland Ptr* 55:641-3 Ag '15
Standardization of the trimming of blocks for engravings. F. W. Gage. *Inland Ptr* 56:246-9 My '15

Plates, Iron and steel

Bottom plates for pouring ingots. R. H. Irons. *Iron Age* 96:1231-2 N 25 '15
Failure of British steel ship plates. W. J. B. Wilson. *Iron Age* 95:610-13 Mr 18 '15; *Abstract. Am Soc M E J* 37:57-8 Ja '15
Magnet crane for handling steel plates. *Iron Tr R* 57:492 N 9 '15
Perforated-metal in Italy. *Metal Work* 84:211 Ag 13 '15
Surprising failure of steel ship plates. *Int Marine Eng* 20:50-1 F '15
See also **Roller plates**

Plating

Advance in automatic plating machinery. M. Doyle. *Met Ind n s* 13:481-3 O '15
Economy of copper cyanide. C. Dittmar. *Metal Ind n s* 12:526 D '14
Keeping cost in a job plating shop. H. J. Ter Doest. *Metal Ind n s* 13:189 My '15
Metal cyanides. *Metal Ind n s* 13:474-5 N '15
Modern piece work system for a large plating department. C. H. Fleischer. *Metal Ind n s* 13:325-6 Ag '15
Modern plating department order system. C. H. Fleischer. *Metal Ind n s* 13:151-2 Ap '15
Modern plating practice: a piecework system as used by the National cash register company. W. Fraire. *Met Ind n s* 13:1-4 Ja '15
Plating by impact. *diag Sci Am S* 79:406 Je 28 '15
Preparation of chemical salts: gold chloride, silver chloride, silver cyanide. C. H. Proctor. *Metal Ind n s* 13:10 Ja '15
Protective coatings for iron and steel. E. P. Later. *Foundry* 42:497-8 D '14
Simple and successful dip gilding solution. C. H. Proctor. *Metal Ind n s* 13:323 Ag '15
See also **Copper plating**; **Electroplating**; **Galvanizing**; **Gold plating**; **Metal coating**; **Nickel plating**; **Silver plating**

Platinum

Determination of platinum, palladium and gold. A. M. Smoot. *Eng & Min J* 99:700-1 Ap 17 '15

Platinum—Continued

- Emissivity of metals and oxides; the total emissivity of platinum and the relation between total emissivity and resistivity. F. D. Foote. U S Bur Stand Bul 11:607-12 My 27 '15
- Platinum in California. Eng & Min J 99:1045 Je 12 '15
- Platinum in litharge. F. Michel. Eng & Min J 100:315 Ag 21 '15

Testing

- Study of the quality of platinum ware with special reference to losses on heating. G. K. Burgess and F. D. Sale. II diag U S Bur Stand Bul 12:289-314. Bibliography. 314-16 N 8 '15; Same cond. J Ind & Eng Chem 7:561-4 J1 '15

Platinum plating

- Gold and platinum plating; practical formulae with instructions for their use. M. Kateridge. Metal Ind n s 13:109-10 Mr '15

Plattsburg military camp

- Business men's training camp at Plattsburg. II Sci Am 113:182-3 Ag 28 '15

Player-piano rolls. See Piano player records**Playgrounds**

- Play ground construction at Boston, Mass.; itemized list of proposed expenditures. Eng & Contr 44:sup22-3 O 27 '15

Pilgrimage press, Norwood, Massachusetts

- Scientific management in the office. R. T. Kent. Iron Age 95:32-6, 142-4 Ja 7-14 '15

Pilotron

- Pure electron discharge and its applications in radio telegraphy and telephony. I. Langmuir. diag Gen Elec R 18:334-9 My '15; Abstract. Elec W 65:1247 My 15 '15

Plows, Motor. See Motor plows**Plumbers**

- English writer lauds United States plumbers. E. Fain. Dom Eng 69:392 D 26 '14
- Federal court ruling in the Des Moines case. Dom Eng 71:161-2 My 8 '15
- Government prosecution of master plumbers. L. C. Boyle. Dom Eng 72:139-41 J1 31 '15
- National association of master plumbers in annual convention at Chicago. Dom Eng 72:59-79 J1 17 '15
- National association of master plumbers 33d annual convention, Chicago, July 13-15. Metal Work 84:121-9 J1 23 '15
- New York plumbing apprentices. Metal Work 84:164 O 8 '15
- Ohio master plumbers meet in convention. Metal Work 83:302-4 F 19 '15
- Plumber's contribution to civilization. E. F. Dunne. Dom Eng 69:389 D 26 '14
- Relation of the plumber to the public. C. O. Walker. Dom Eng 71:35-6 Ap 10 '15
- Report of Chicago master plumbers' sanitary committee. Dom Eng 72:136-7 J1 31 '15
- Report of the special joint committee on plumbing apprenticeship in New York city. Dom Eng 72:371 S 25 '15
- Women as successful master plumbers, B. H. Albee. II Dom Eng 73:71-2 O 16 '15
- See also names of societies, e. g. National association of master plumbers; New Jersey state association of master plumbers

Plumbing

- Building construction and modern plumbing. J. L. E. Firmin. Metal Work 84:624-5 N 12 '15
- By-pass, dead-end and blind vent defined. diag Dom Eng 73:270-1 N 27 '15
- Heating and plumbing in paint factory. II Metal Work 84:272-3 Ag 27 '15
- Memories of hygone days. J. Troland. Dom Eng 69:412-13 D 26 '14
- Modern equipment in Detroit athletic club. II diag plan Metal Work 84:37-9+, 73-6 J1 9-16 '15
- Modern London plumbing supply house. II Metal Work 83:186-8 Ja 29 '15
- Modern methods of venting fixtures. J. Graham. diag Dom Eng 71:302-4; 72:5-6 Je 12, J1 3 '15
- Modern plumbing in its relation to building. J. L. E. Firmin. Dom Eng 73:145-6 O 30 '15

National association of master plumbers sanitary committee's report. Dom Eng 72:112-13 J1 24 '15

- Plumbing and heating in Burke home. II Metal Work 83:506-7+ Ap 2 '15
- Plumbing and heating in California bungalow. A. C. Shaver. II plan Metal Work 83:465-7+ Mr 26 '15
- Plumbing and heating in Cincinnati hospital. K. C. Cardwell. II plan Dom Eng 71:212-14 My 22 '15
- Plumbing and its relation to public health. W. C. Groeniger. Metal Work 83:415-16+ Mr 19 '15
- Plumbing equipment in Jersey high school. II Metal Work 84:77+ J1 16 '15
- Plumbing equipment in Loomis institute, Windsor, Conn. II diag plan Metal Work 83:323-6 F 26 '15
- Plumbing equipment in mercantile building. II diag Metal Work 83:797-9 D 18 '14
- Plumbing equipment of Montclair, N. J., high school. II plan Metal Work 84:483-4+ O 15 '15
- Plumbing equipment of swimming pool, Louisville, Ky. II plan Metal Work 83:288-90 F 19 '15; Same. Bldg Age 37:39-40 J1 '15
- Plumbing in a suburban residence. J. Graham. plans Dom Eng 70:68-70 Ja 16 '15
- Plumbing in eastern district Y. W. C. A. II plan Metal Work 83:835-6+ Je 11 '15
- Plumbing installation and sewage disposal. C. A. Whittemore. diag Brickb 24:81-4, 115-18, 137-40, 171-3, 197-200 Ap-Ag '15
- Plumbing installation in movie theater. II plan Metal Work 84:99-100 J1 23 '15
- Plumbing practice in southern Australia. Metal Work 83:508+ Ap 2 '15
- Plumbing system in Bridgeport bank building. II Metal Work 84:462-3 O 8 '15
- Plumbing system in Seamen's church institute. II Metal Work 83:412-14 Mr 19 '15
- Plumbing system of modern office building. II plan Metal Work 84:279-80 Ag 27 '15
- Plumbing system of public market station. II plan Metal Work 84:555-7 O 29 '15
- Plumbing work in Harvard club of New York. II plan Metal Work 84:605-7 N 12 '15
- Plumbing work in Kentucky high school. II Metal Work 84:146-8 J1 30 '15
- Typical country plumbing installations. II plans Bldg Age 37:57-60 J1; 61-4 Ag '15
- Typical restaurant plumbing system. G. D. Crain, Jr. II plans Metal Work 83:727-9 D 4 '14
- Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. diag Dom Eng 72:386, 313-15, 338-40 S 4-18 '15
- See also Bath rooms; Drainage, House; Gas fitting; Hot water supply; Plumbing fixtures; Plumbing laws; Plumbing supplies; Plumbing trade; Sanitary engineering; Sewer gas; Shower baths; Toilet rooms; Water closets

Standards

- Need of a national plumbing code. T. J. Claffy. Dom Eng 71:247-9 My 29 '15; Same. Metal Work 83:875-7 Je 18 '15

Study and teaching

- Sheet metal and plumbing work exhibited. II Metal Work 84:546-7 O 29 '15
- Training the master plumber's apprentice. W. A. Fink. Metal Work 83:888-9 Je 18 '15

Traps

- Construction and action of grease traps. diag Dom Eng 70:11 Ja 2 '15
- Different types of grease traps. J. Graham. diag Dom Eng 72:369-71 S 25 '15
- Drum trap and its types. J. Graham. diag Dom Eng 72:30-2 J1 10 '15
- Location of the grease trap. diag Dom Eng 71:339-40 Je 19 '15
- Plumbing installation and sewage disposal. C. A. Whittemore. diag Brickb 24:115-16 My '15
- Sand and oil trap for garage. diag Metal Work 84:523 O 22 '15
- Plumbing fixtures
- Hidden fixture overflows a menace. S. C. Fredricks. Metal Work 83:838 Je 11 '15

Plumbing fixtures—Continued

- Kohler company shows the plumber what he can purchase. *11 Metal Work 83:447-8 Mr 13 '15*
- Novel bath tub and wash stand. C. L. Edholm. *11 Metal Work 84:588 N 5 '15*
- Plumbing installation and sewage disposal. C. A. Whittemore. *diags Brickb 24:116-18 My '15*

See also Water closets

Plumbing laws and regulations

- Important plumbing legislation pending in Ohio. *Dom Eng 70:405 Mr 27 '15*
- Los Angeles secures new plumbing ordinance. *Dom Eng 72:727 J1 3 '15*
- Massachusetts supreme court hands down decision favoring permit to journeyman plumber. *Dom Eng 69:288 D 5 '14*
- Master plumbers scrutinize proposed plumbing laws for Massachusetts. *Dom Eng 71:223 My 22 '15*
- Need of a national plumbing code. F. J. Hanley. *Dom Eng 72:176-8 Ag 7 '15*
- Need of a national plumbing code. T. J. Claffy. *Dom Eng 71:247-9 My 29 '15*; Same. *Metal Work 83:876-7 Je 18 '15*
- New plumbing law for Oklahoma. *Dom Eng 72:259-60 Ag 28 '15*
- New plumbing ordinance for Manchester, Conn. *Dom Eng 73:178-80, 205-6 N 6-13 '15*
- New plumbing ordinance for Marietta, O. *Dom Eng 70:114 Ja 23 '15*
- Pasadena plumbing code and the chief sanitary inspector. W. R. Marshall. *Dom Eng 70:338-9 Mr 18 '15*
- Plumbing bill pending before Oklahoma state legislature. *Dom Eng 69:334 D 12 '14*
- Plumbing law requires competence. *Metal Work 84:183-3 J1 23 '15*
- Plumbing standards and local regulations. *11 diags Metal Work 83:691-2 My 14 '15*
- Proposed plumbing law for Pennsylvania. *Dom Eng 71:279-80 Je 5 '15*
- Proposed plumbing laws for Massachusetts. *Dom Eng 71:158-9 My 8 '15*
- Proposed state law for licensing steam-fitters in Iowa. *Dom Eng 70:308-9 Mr 6 '15*
- Rain water leaders. E. R. Porter. *diags Dom Eng 73:230-1 N 20 '15*
- Sanitary regulations in Canada. *Metal Work 83:548 Ap 9 '15*
- Should plumbing laws be enacted by state or city? F. R. King. *Metal Work 83:229-31 F 5 '15*
- Texas district court decides house owner can install own plumbing. *Dom Eng 73:111-12 O 23 '15*

Plumbing shops

- Clearing the way for the season's business. *11 Metal Work 83:427-9+ Mr 19 '15*
- Cleveland showroom for sanitary goods. *11 Metal Work 83:522-3 Ap 2 '15*
- Combination shop can best serve community. *11 Metal Work 83:85-8+ Ja 8 '15*
- Combination shop in Lake Villa, Ill. *11 Metal Work 84:365-6+ S 17 '15*
- Combination shop in southern Australia. *Metal Work 83:93 Ja 8 '15*
- Combination shop of convenient arrangement. *11 plan Metal Work 83:57-9 Ja 1 '15*
- Combination shop sets example in system. *11 Metal Work 83:434-5 Mr 19 '15*
- Master plumber and the show window. *11 Metal Work 83:349-50 Mr 5 '15*
- Money in combination shop's window display. *11 Metal Work 84:454-5 O 8 '15*
- Photos advertise combination shop's products. *11 Metal Work 84:395-6 S 24 '15*
- Practical helps in retailing plumbers' goods. S. L. Krebs. *Dom Eng 70:305-7 Mr 6 '15*
- Successful management of combination shop. *11 Metal Work 83:815-16 Je 4 '15*
- Window observers are future customers. *11 Metal Work 84:672 N 26 '15*

Plumbing supplies

- Among the exhibitors and salesmen. *11 Dom Eng 72:80-90 J1 17 '15*
- Eastern supply association's summer meeting. *Dom Eng 71:377-9 Je 26 '15*
- Handling of malleable fittings. W. J. Woolley. *Dom Eng 72:107-9 J1 24 '15*
- Judicious buying of plumbing materials. *Metal Work 83:59-60 Ja 1 '15*

- Meeting of the Eastern supply association; list of those in attendance. *Dom Eng 70:282-3 F 27 '15*
- Modern London plumbing supply house. *11 Metal Work 83:186-8 Ja 29 '15*
- New goods at Master plumbers' convention. *11 Metal Work 84:231-7 Ag 13 '15*
- Plumbing supplies and jobbers' problems. L. O. Koven. *Metal Work 84:589 N 5 '15*
- 6th meeting of the Central supply association; list of members represented. *Dom Eng 70:283-4 F 27 '15*

See also Heating apparatus

Plumbing trade

- Annual congress of the trade. *Dom Eng 69:415-35+; 70:13-15 D 26 '14, Ja 2 '15*
- Beginner's troubles in plumbing work. F. W. Page. *Metal Work 83:290 F 19 '15*
- Better business building blocks. G. R. Adams. *Dom Eng 73:105-7, 143-4 O 23-30 '15*; Same cond. *Metal Work 84:533-5 O 22 '15*
- Building plumbing trade by mail. H. Whitehead. *Dom Eng 71:6-9 Ap 3 '15*
- Business depression and the plumbing trade. S. L. Barnes. *Metal Work 84:130-1 J1 23 '15*
- Business methods for the master plumber. W. A. Fink. *Dom Eng 65:70-1, 107-8, 169-70, 206-7, 267-9, 306-7, 373, 66:40-1, 170-1, 299-300, 376-7, 64-5, 264-5, 63:7-8, 160, 254-5, 358-9, 392, 69:19, 70-1, 130-1, 200, 269-70, 331-2, 368-9, 70:42-3, 103, 204-5, 273-4, 369, 71:34-5, 101-3, 72:171-2, 227-3, 343-4 O 18-25, N 8-15, 29 D 6, 20 '15, Ja 10, F 7, Mr 7, Ap 4, 18, My 30, J1 4, Ag 8, 29, S 19, 26, O 3, 17, 31, N 14, 28, D 12-19 '14, Ja 9, 23, F 13, 27, Mr 20, Ap 10, 24, Ag 7, 21, S 18 '15*
- Constructive publicity for the plumbing trade. *Dom Eng 73:206-7 N 13 '15*
- Country business for the plumber. C. D. Crain. *Dom Eng 71:336-7 Je 19 '15*
- Credit systems for plumbers and fitters. W. A. Fink. *Dom Eng 73:9-10, 169-70, 297 O 2, N 6, D 4 '15*
- How one master plumber was successful. *Metal Work 83:55-6 Ja 1 '15*
- How service may be right arm of success. G. R. Adams. *Dom Eng 69:360-3 D 19 '14*
- Loose credits as a trade demoralizer. H. H. Highlands. *Dom Eng 70:77 Ja 16 '15*
- Manufacturers and aggressive sales seekers. *11 Metal Work 83:14-25 Ja 1 '15*
- Master plumbers' idea of profit in labor. H. F. Baillet. *Metal Work 83:873-+ Je 18 '15*
- Motor trucks and business efficiency. *11 Metal Work 83:50-2 Ja 1 '15*
- Office helps for the master plumber. J. F. Scott. *Dom Eng 71:66-7; 72:7-8 Ap 17, J1 3 '15*
- Questioning the plumber's bill. *Dom Eng 73:197 N 13 '15*
- Retired plumber's advice to beginners. D. L. Hanson. *11 Dom Eng 68:224-6; 69:104-6, 192-4, 324-6, 401-3; 70:236-8, 406-8; 71:98-100, 250-2; 72:257-8, 373-4; 73:138-40, 268-70 Ag 23, O 24, N 14, D 13, 26 '14, F 20, Mr 27, Ap 24, My 29, Ag 28, S 25, O 30, N 27 '15*
- Selling helps that have proved effective. *Metal Work 83:2-9 Ja 1 '15*
- Standard prices for standard services. W. El. Clow. *Metal Work 83:254 F 12 '15*
- Strength and weakness in the master plumber. W. J. Woolley. *Metal Work 83:89-91+ Ja 8 '15*
- Successful merchandising for the plumber. H. Whitehead. *Dom Eng 70:5-6, 78-9 Ja 2, 16 '15*
- Training the master plumbers' apprentice. W. A. Fink. *Metal Work 84:30-1 J1 2 '15*

See also Plumbing fixtures; Plumbing shops; Plumbing supplies

Accounting

- Business methods for the plumber and fitter. W. A. Fink. *Dom Eng 71:185-6 My 15 '15*
- Cost accounting in plumbing establishments. H. G. Helstrum. *Metal Work 83:53-4 Ja 1 '15*
- Cost system of Denver combination shop. J. R. Elliott. *Metal Work 84:274-8 Ag 27 '15*
- Merchant plumber's overhead expense. J. J. Foy. *Metal Work 83:261-3 F 12 '15*
- Overburdening the overhead expense. H. Whitehead. *Dom Eng 72:817-18 S 11 '15*

Plumbing trade—Accounting—Continued

- Overhead expense per man per hour. W. A. Fink; R. H. Pflug-Felder. Dom Eng 71:335-6 Je 19 '15
 Practical cost system for combination shop. Metal Work 84:306, 340-1, 361-1, 397-8 S 3-24 '15
 What is cost of material and labor? W. A. Fink. Dom Eng 72:105-6 Jl 24 '15

Advertising

- Assisting the trade in newspaper advertising. I Dom Eng 73:272-4 N 27 '15
 Business methods for the plumber and fitter. W. A. Fink. Dom Eng 69:331-2; 70:42-3, 273-4; 71:101-2 D 12 '14, Ja 9, F 27, Ap 24 '15
 Interesting the farmer in good plumbing. J. A. Owens. Dom Eng 72:287-8 S 4 '15
 Seasonable show window advertising. L. Axworthy. Metal Work 84:658 N 19 '15
 Show room advertising for merchant plumbers. C. G. Perry. Metal Work 83:839-40 Je 11 '15
 Where to dig for fall profits. I Metal Work 84:287-71 Ag 27 '15

Plumbxan

- Plumbxan process for producing oxygen and nitrogen from atmospheric air: abstract. G. Kassner. Am Soc M E J 37:119 F '15

Pneumatic hammers

- Air drill does duty as steam hammer in blacksmith shop. W. Bazore. I Eng Rec 72:270 Ag 23 '15
 Barr pneumatic light forging hammer. I Ind Eng 14:422 N '14; Ry Age (Mech ed) 89:147-8 Mr '15
 Pneumatic hammer. I diag Ry Age (Mech ed) 89:586-7 N '15

Pneumatic pumps. See Air pumps**Pneumatic signals**

- Improvement in the operation of the pneumatic signal device. L. N. Armstrong and H. L. Sandhas. diag Ry R 56:613-21 My 8 '15

Pneumatic tires. See Tires (automobile)**Pneumatic tools**

- Compressed air as source of power: advantages of pneumatic power tools. C. C. Phelps. Metal Work 82:322-4 D 25 '14
 Cost of compressed air. T. F. Crawford. Ry Age (Mech ed) 89:364-5 Jl '15
 Lubrication of pneumatic tools. Ry R 57:276-7 Ag 23 '15
 Maintenance of pneumatic tools. I Ry Age (Mech ed) 89:413-15 Ag '15
 Pneumatic plate flanging clamp. I Iron Tr R 56:271 F 4 '15
 Pneumatic tie peeler. I Ry Age 59:342 Ag 20 '15
 Tool-om-eter. I diag Int Marine Eng 20:186-7 Ap '15

See also Pneumatic hammers; Tamping machines

Pneumatic tubes

- Pneumatic grain elevating plant. I diag (supp) Engineer 120:361, 366 O 15 '15
 Telegraph traffic and power plant for pneumatic tubes in post offices: abstract. A. B. Eason. Am Soc M E J 37:418-19 Jl '15
See also Waste removal

Pneumatics

- Action of an air jet on the surrounding air: abstract. T. Trüpel. Am Soc M E J 37:283-5 My '15

Can we locate the neutral zone in heated buildings? J. J. Blackmore. diag Heat & Ven 12:27-32 N '15

See also Air; Gases

Pocatello, Idaho**Water supply**

- Regulation of water rates. Munic Eng 47:457-8 D '14

Poisonous gases. See Gases, Asphyxiating**Poisonous plants**

- Cicutoxin; the poisonous principle in water hemlock (cicuta). C. A. Jacobson. I Am Chem Soc J 37:916-34 Ap '15

Poland**Industries and resources**

- Mines and smelting works of Poland. I map Eng & Min J 98:146-8 Ja 16 '15

Polar exploration. See Arctic exploration**Polaris**

- Azimuth observations on Polaris by daylight. R. V. R. Reynolds. Eng N 73:779 Ap 23 '15; Same. Eng & Min J 99:776 My 1 '15

Polarity

- Polarity reversal in synchronous converters. E. R. Shepard. diag Elec W 65:210-11 Ja 23 '15
 Some transformer connections. G. Fox. diag Power 41:46-8 Ja 12 '15

Polarity tester

- New polarity tester. diag Engineer 118:550 D 11 '14; Same. Elec W 65:102 Ja 9 '15

Poles

- Corrugated iron protectors for trans-continental telephone line poles in Lake Humboldt, Nev. I Eng & Contr 44:27 Jl 14 '15
 Destruction of cement sidewalks by trolley poles. C. H. Fuller. Elec Ry J 46:832-3 O 16 '15
 Determination of annual charge for ties, poles and fence posts. W. F. Goltra. Ry Age 58:1087 My 21 '15
 Effect of preservatives on wood poles. F. L. Rhodes and R. F. Hosford. Elec Ry J 46:879 O 23 '15
 Laws of deterioration of telegraph poles: abstract. F. Moll. Am Soc M E J 37:653-4 N '15
 Preserving and reinforcing decayed wooden poles with concrete. Concrete Cem 6:19 Ja 15
 Raising a 135-ft. flagpole with electric trucks. I Elec W 56:595 S 11 '15
 Reinforcing metal poles. G. H. McKelway. Elec Ry J 46:365-7 Ag 28 '15
 Reinforcing wood poles with railroad rails. J. Orcheston. diag Elec W 66:172 Jl 24 '15
 Reinforcing wood poles with steel channels. L. R. W. Allison. I Elec W 66:1307 N 27 '15
 Repairing broken tubular iron poles. S. L. Foster. diag Elec Ry J 46:450-1 S 11 '15
 Results obtained from the preservative treatment of telephone poles. F. L. Rhodes and R. F. Hosford. bibliog I Am Inst E I Pro 34:2343-37 O '15; Abstract. Elec W 66:1031 N 6 '15
 Simplex pole jack. I Elec R & W Elec'n 67:683 O 9 '15; Elec W 66:827 O 9 '15
 Speedy and inexpensive pole moving in San Francisco. S. L. Foster. I Elec Ry J 46:874 O 23 '15

See also Electric lines; Street lighting fixtures

Poles, Concrete

- Combined concrete poles and lighting standards. I Elec W 65:739-40 Mr 20 '15
 Concrete lighting standards for bridges at Houston, Texas. W. W. Washburn. I diag Concrete Cem 6:123-4 Mr '15
 Concrete lighting standards made attractive. L. R. W. Allison. I Eng N 74:1080 D 2 '15
 Concrete poles in electric railway work. diag Ry R 57:437-9 O 16 '15
 Concrete posts and poles; report to the American railway bridge and building association. G. H. Boyd. Ry R 56:360-2 Mr 13 '15
 Concrete transmission-line poles. R. D. Coombs. I Elec W 65:341-3 F 6 '15
 Concrete transmission poles. A. R. Holliday. I Elec W 66:237 Jl 31 '15
 Design and construction of a concrete idler stand. H. H. Hunter. diag Eng & Contr 44:413-14 N 24 '15
 Electrolysis develops defects in but three out of 1500 concrete poles. H. G. Throop. Elec Ry J 45:294 F 6 '15
 Manufacturing reinforced concrete poles or piles by rolling. diag Concrete Cem 6:265-6 My '15
 Reinforced-concrete flag-pole at Panama. G. C. Dobson. I diag Eng N 74:452-3 S 2 '15
 Reinforced concrete poles for railways. I diag Elec Ry J 44:1263 D 5 '14
 Report on concrete poles for electric railways. Eng N 74:943 N 11 '15
 Tall concrete poles have given nine years' service. I Eng Rec 71:550 My 1 '15

- Poles, Steel**
 Climbers for structural-steel poles. *Il diag Elec Ry J 46:1049 N 20 '15*
 Expanded metal poles replace two wooden pole lines. *Il Elec Ry J 46:1090-1 N 27 '15*
 New type of steel pole. *Il Elec Ry J 46:32 J1 3 '15*
 Steel pole strength per pound increased. *Il diags Elec Ry J 46:370 Ag 23 '15; Elec W 66:549 S 4 '15*
- Police**
 Future of the police arm from an engineering standpoint; with discussion. H: Bruere. *Am Soc M E J 37:77-81 F '15; Same. Sci Am S 79:174-5 Mr 13 '15*
 Municipal police departments—their relative size. A. L. Bostwick. *Munic Eng 48:141-2 F '15*
 Sizes of police departments. *Munic J 38:315-16 Mr 11 '15*
- Police alarms**
 Signal box records. P. I. Patton. *Munic J 39:397-8 S 9 '15*
- Police patrol**
 Motorized police department. K. C. Cardwell. *Il Munic J 38:316-17 Mr 11 '15*
- Polishing. See Grinding and polishing**
 Polishing wheels. *See Grinding and polishing*
- Ponce de Léon, Juan, 1460?-1521**
 First mining engineer of the western hemisphere. *Eng & Min J 99:274 F 6 '15*
- Pontianak rubber resin. See Gums and resins**
- Pontoon bridges**
 Building bridges under fire. M. Wells. *Il Sci Am 111:456-7 D 5 '14*
 Pontoon bridges and rafts. *Il Sci Am S 80:116 Ag 21 '15*
 Pontoon railroad bridge across the Panama canal. *diags Ry R 56:82-4 Ja 16 '15*
 Pontoon swing-bridge over the Panama canal. *Eng N 73:126 Ja 21 '15*
 Swinging pontoon bridge carries railroad across Panama canal. *diags Eng Rec 71:270-1 F 27 '15*
- Pontoons**
 Pontoon for building Memphis bridge caissons. *diags Eng N 73:1037 My 27 '15*
- Pontoons, Concrete**
 Reinforced concrete pontoon. O. Johnson. *Il Sci Am 111:505 D 19 '14*
- Poor farms. See Almshouses**
- Poorhouses. See Almshouses**
- Porcelain**
 American-made porcelain ware for chemical laboratories. *Il Met & Chem Eng 13:461 J1 '15*
 Electrical porcelain. I. Testing with a high-frequency oscillator. II. The problematical points of manufacture. III. Experiences and experimental investigation. E. M. F. Creighton. *Il Am Inst E E Pro 34:763-841 My '15; Abstract and discussion. Elec R & W Elec'n 66:395-6 F 27 '15; Elec W 65:528 F 27 '15; Discussion. Am Inst E E Pro 34:2622-45 N '15*
 High-frequency oscillator for porcelain-insulator testing. *Il diag Elec R & W Elec'n 66:380-1 My 8 '15*
 Model porcelain factory in Klang. *Metal Work 34:586 N 5 '15*
 Viscosity of porcelain bodies high in feldspar. A. V. Bleininger and C. S. Kinnison. *U S Bur Stand Tech Pa 50:1-7 '15; Abstract. Metal Work 34:526 O 22 '15*
See also Pottery
- Porches**
 Early American architectural details: Tucker-Rice porch, Salem, Mass. *Brickb 24:pl 1 Ja '15*
- Porphyry**
 Porphyry coppers. P. E. Barbour. *Eng & Min J 99:1111-12 Je 26 '15*
- Portable buildings. See Buildings, Portable**
- Portable railroads. See Railroads, Portable**
- Portable schoolhouses. See Schoolhouses, Portable**
- Portable towers. See Towers, Portable**
- Portage silica company**
 How the Portage silica co. prepares its product to meet the requirements of the foundry trade. *Il Foundry 43:36-7+ Ja '15*
- Porter, Rufus**
 Founder of the Scientific American. *R: Atwater. Sci Am 112:493 My 29 '15*
- Portland, Maine**
- Bridges**
- Construction details of bridge across Portland harbor. *Il diag Eng N 74:865-8 N 4 '15*
 Portland harbor bridge. *Il diags plan Eng N 74:824-9 O 28 '15*
- Portland, Oregon**
 Portland's municipal testing laboratory. H. White. *Il Munic J 39:808-9 N 25 '15*
- Bridges**
- Interstate bridge over the Columbia river. E. E. Howard. *diags Eng N 73:1218-21 Je 24 '15*
 Pacific highway interstate bridge over the Columbia river and its approaches between Vancouver, Wash., and Portland, Ore. E. E. Howard. *diags Eng & Contr 43:540-3 Je 16 '15*
 Portland viaduct. W. B. Conant. *Il diags Munic J 39:499-503 S 30 '15*
- Bureau of photography**
- Municipal department for copying records, photographing pavements, sewers and other public works. H. M. White. *Il Munic J 39:577-8 O 14 '15*
- Harbor**
- Panama canal and the ports of the Pacific. A. J. Quigley. *Il map Eng M 48:808-11 Mr '15*
- Rapid transit**
- Effect of publicity on the jitney movement in Portland. F. W. Hild. *Elec Ry J 46:560-1 S 18 '15*
 Traffic analysis and schedule planning at Portland. F. Cooper. *Elec Ry J 46:562-4 S 18 '15*
- Streets**
- Portland street corner directories. *Munic J 39:7 J1 1 '15*
- Water supply**
- Method and cost of constructing and repairing submerged water pipe lines at Portland, Ore. D. D. Clarke. *diags Eng & Contr 42:538-42 D 9 '14*
- Portland cement. See Cement**
- Portland railway, light & power company**
 Portland valuation brief filed. *Elec Ry J 46:922 O 30 '15*
- Ports**
 Development of port of Boston. *map Eng & Contr 43:sup29 Je 16 '15*
 Panama canal and the ports of the Pacific. A. J. Quigley. *Il maps Eng M 48:493-7, 641-57, 808-26: 49:1-17 Je Ap '15*
 Port development at Seattle. P. P. Whitham. *Il diags map Eng N 73:476-81 Mr 11 '15*
 Port improvements along the Mississippi and Ohio rivers. *Eng N 73:1066-8 Je 3 '15*
 To make Nottingham a port. *Sci Am S 79:342 My 29 '15*
See also Freight handling; Harbors; Piers; Terminals
- Post office buildings**
 Business principles in constructing public buildings. *Eng Rec 72:161 Ag 7 '15*
 Heating equipment of federal building, Denver. *Il Metal Work 34:247-9+ Ag 20 '15*
 Mechanical equipment of the Grand Central post office. H. T. Wade. *Il Sci Am 118:232-3 S 11 '15*
 New post office, Washington, D. C. *Il Arch & Bldg 46:428-9 N '14*
 New post office, Washington, D. C.; views. *Arch Rec 37:278-80 Mr '15*
 Post office, New Orleans, La. J. G. Rogers. *Il Arch & Bldg 47:131-6 Ap '15*
- Postal rates**
 In re third-class postage. R. H. Booth. *Inland Ptr 56:101 O '15*

Postal service

See also Mail handling; Parcel post; Railway mail service

Germany

German post office and the German army. A. Gradenwitz. *Il Sci Am* 113:25+ J1 3 '15

Postal service, Military

German post office and the German army. A. Gradenwitz. *Il Sci Am* 113:25+ J1 3 '15

Posters

Specimens of posters. *Inland Ptr* 54:656a-656h F '15

Posts

Constructing stair newel posts. C. L. Oakley. *diags Bldg Age* 37:71 Ag '15

See also Fence posts; Lamp posts

Posts, Concrete

B. L. & P. concrete sign and post plant. *diags Ry Age* 53:1484-5 Je 18 '15

Concrete posts for grape trellis. *Il Bldg Age* 37:69 N '15

How concrete lamp-posts are made for Lincoln park, Chicago. G. T. Donoghue. *Il diag Eng N* 74:989 N 18 '15

See also Fence posts, Concrete

Potash

Agriculture in Germany and significant facts about potash. *Sci Am S* 80:167 S 11 '15

Business aspect of the kelp proposition. F. P. Dewey. *Sci Am S* 79:71 Ju 30 '15

Cushman-Coggeshall method for potash. G. W. Coggeshall. *Eng M* 49:578 J1 '15

Doing without Europe. *Sci Am* 112:157+ F 13 '15

Drilling costs in potash prospecting. E. E. Free. *Eng & Min J* 100:108-9 J1 17 '15

European war and potash supplies. T. J. Keenan. *Sci Am S* 79:86 F 6 '15

Extracting potash from salines of low potash content. *Eng & Min J* 100:324 Ag 7 '15

Feldspar as a possible source of American potash. A. S. Cushman and G. W. Coggeshall. *J Ind & Eng Chem* 7:145-51 F '15; Same. *Met & Chem Eng* 13:99-104 F '15

German and other sources of potash supply. C. H. Macdowell. *Am Inst Min E Bul* 93:103-14 N '15; Abstract. *Met & Chem Eng* 13:179

Mr '15; Discussion. *Am Inst Min E Bul* 101:1118-19 My '15

Investigation of sources of potash in Texas. W. B. Phillips. *Il Am Inst Min E Bul* 98:116-27 F '15

Possible source of potash. *Eng & Min J* 100:877 N 27 '15

Possible sources of potash in the United States. A. H. Rogers. *Met & Chem Eng* 13:387-8 Je '15

Potash deposits in Chile. S. Salcedo. *Eng & Min J* 100:218 Ag 7 '15

Potash from leucite. A. H. Rogers. *Eng M* 49:578-6 J1 '15

Potash from wood and plant ashes. H. Bradley. *diag Met & Chem Eng* 13:841-6 N 15 '15

Potash in Texas. J. A. Udden. *Eng M* 49:577 J1 '15

Potash situation. E. Hart. *J Ind & Eng Chem* 7:673-1 Ag '15; Excerpt (New process) *Eng N* 74:616 S 23 '15

Potash situation. J. W. Beckman. *Met & Chem Eng* 13:582 S 15 '15

Potash situation. S. H. Dolbear. *Met & Chem Eng* 13:481-2 Ag '15

Potassium salts; an economic geological study. E. M. Heriot. *Il maps Eng & Min J* 100:689-72, 712-14 O 23-30 '15

Producing potash in Utah. *Eng & Min J* 100:689-9 O 23 '15

Searles Lake (Cal.) patent protest. *Eng & Min J* 99:334-5 F 13 '15

Spanish potash deposits. *Eng & Min J* 100:262 Ag 14 '15

Potassium

Perchloric method of determining potassium as applied to water analysis. C. Scholl. *Am Chem Soc J* 36:2085-9 O '14

Potassium ammonocarbonate

Action of potassium amide solution on silver amide. E. C. Franklin. *Am Chem Soc J* 37:852-5 Ap '15

Potassium ammonobarate

Potassium ammonobarate, ammonostrontiate and ammonocalciate. E. C. Franklin. *Am Chem Soc J* 37:2255-301 O '15

Potassium ammonocalciate

Potassium ammonobarate, ammonostrontiate and ammonocalciate. E. C. Franklin. *Am Chem Soc J* 37:2255-301 O '15

Potassium ammonostrontiate

Potassium ammonobarate, ammonostrontiate and ammonocalciate. E. C. Franklin. *Am Chem Soc J* 37:2255-301 O '15

Potassium bitartrate. See Cream of tartar**Potassium carbonate. See Potash****Potassium chloride**

Potassium chloride concentration cells. D. A. MacInnes and K. Parker. *diags Am Chem Soc J* 37:1445-61 Je '15

Solubility of mixtures of sodium and potassium chlorides in solutions of hydrochloric acid. W. B. Hicks. *diag Am Chem Soc J* 37:844-7 Ap '15

Potassium cyanide

Blacksmith's use of borax and cyanide. *Eng & Min J* 99:1076 Je 19 '15

Potassium dichromate

Oxidation and reduction without the addition of acid; the reaction between ferrous sulfate and potassium dichromate. M. Neidle and J. C. Witt. *Am Chem Soc J* 37:2360-3 O '15

Potassium iodate

Oxidation of sulfides with potassium iodate. R. S. Dean. *Am Chem Soc J* 37:1134-7 Nly '15

Potassium iodide

Study of the system: water, potassium iodide and iodine at zero degrees. G. Jones and M. L. Hartmann. *Am Chem Soc J* 37:241-68 F '15

Potassium permanganate

Making up standard permanganate solution. H. E. Moyer. *Eng & Min J* 100:522 S 25 '15

Potassium phthalate

Acid potassium and acid sodium phthalates as standards in acidimetry and alkalimetry. W. S. Hendrixson. *Am Chem Soc J* 37:2352-9 O '15

Potentiometers

Alternating-current potentiometer; abstract. C. V. Drysdale. *diag Elec W* 65:1554 Je 12 '15

Leakage prevention by shielding, especially in potentiometer systems. W. P. White. *diags Am Chem Soc J* 36:2011-20 O '14

Potentiometers for thermoelectric measurements especially in calorimetry. W. P. White. *diags Am Chem Soc J* 36:1868-85 S '14

Testing of potentiometers. F. Wenner and E. Weibel. *Il diags U S Bur Stand Bul* 11:1-40 N 15 '14

Pottery

Pottery industry; report on the cost of production in the earthenware and china industries of the United States, England, Germany, and Austria. U S Bur For & Dom Com misc ser 31:1-709 '15; Excerpt. *Sci Am S* 79:263 Ap 24 '15

Probable effect of the war in Europe on the ceramic industries of the United States. A. S. Watts. U S Bur Mines Tech Pa 99:1-14 '15

See also Clay; Porcelain; Tiles

Poultry feeders

Automatic poultry feeder. *Il Sci Am* 113:49 J1 10 '15

Poultry houses

Constructing a poultry house. J. D. Griffen. *plans Bldg Age* 37:62-3 Ja '15

Million chicks to the acre; raising poultry on a manufacturing basis. M. Hastings. *Il Sci Am* 113:247+ S 18 '15

Powder. See Explosives—Storage**Powder, Smokeless. See Smokeless powder****Powdered coal. See Coal, Pulverized****Power**

Hydro-electric power compared with steam; with discussion. R. P. Bolton. *Am Soc Heat & V E* 20:374-91 '14

Power formulas for machine tools. A. D. DuBois. *Elec W* 65:928-33 Ap 10 '15

Power—Continued

- Power requirements of ammonia compressors. W. N. McKee. Power 41:158-60 F 2 '15
- Selecting construction power-plant system. Eng N 74:965-7 N 18 '15
- Steam versus air for power tools. Metal Work 82:796-4 D 18 '14
- See also* Compressed air; Electric power; Engines; Force and energy; Horsepower; Hydroelectric power; Machinery; Mechanics; Mining engineering—Power; Pneumatic tools; Power cost; Power plants; Power transmission; Steam; Units; Water power
- Power cost**
- Cleveland's municipal electric light plant. 11 diag. Munic J 88:869-75 Je 24 '15
- Controlling the cost of electricity. W. N. Polakov. Eng M 49:235-40 My '15
- ✓ Cost of a kilowatt-hour; explanation of terms and elements involved in power generation. A. F. Strouse. Eng M 48:278-80 N '14; Same. Eng & Contr 42:555 D 16 '14
- Cost of combination electric service; investigation at Calgary, Alberta. Elec W 65:1181-3 My 8 '15
- Cost of electric pumping for irrigation. 11 map Elec W 66:68-71 J 10 '15; Same cond. Eng Rec 72:257-8 Ag 28 '15
- Costs in small industrial power plant. C. W. Thayer. Power 41:466-6 Ap 6 '15
- Costs of power relative to total manufacturing costs in various industries; abstract. H. E. McKensit. Ind Eng 14:468-9 D '14
- Decision by Oregon commission, with table of costs for different classes of consumers of the Hood River gas and electric company. Elec W 66:431 Ag 21 '15
- Diesel-engine central station at Winchester, Ind. T. Wilson. 11 Power 41:562-4 Ap 27 '15
- Diesel engine for the contractor—why not? H. D. Hammond. 11 Eng Rec 71:409-10 Mr 27 '15
- Distributing overhead expense. N. T. Ficker. Eng M 49:362-71 S '15
- Electrically operated contractor's plant for building Kensico dam. A. W. Carroll. 11 Eng Rec 71:18-20 Ja 2 '15
- Electricity in grain elevators. H. E. Stafford. 11 diag. Am Inst El E Pro 34:1087-1103 Je '15; Abstract. Elec W 66:90 J 10 '15
- Electricity in implement manufacturing. W. J. Kyle. 11 Elec R & W Elec'n 67:97-101 J 17 '15
- Former engineer of La Salle hotel defends his administration. J. E. Lawrence. Power 41:63-5 Ja 12 '15
- Gas and steam engines and the turbine. J. E. Johnson, Jr. Iron Age 95:626-9 Mr 18 '15; Same. Sci Am S 79:294-5 My 8 '15
- Gas-power plant of the Illinois glass co. at Alton. T. Wilson. 11 plan Power 42:252-6 Ag 24 '15
- German power-cost estimates. L. Schulte. Power 42:714 N 23 '15
- ✓ Graphic analysis of steam-electric power costs. J. Willmore. Elec W 66:189 J 24 '15
- Holyoke gas and electricity. Munic J 38:258 F 25 '15
- How to select your prime mover. G. Fisk. Iron Tr R 57:569-72 + S 23 '15
- ✓ Hydroelectric development; with discussion. H. Flood, Jr. Elec W 65:1267-9 My 15 '15
- Multiplex cost and rate system. O. E. Goldman. Am Ins. El E Pro 34:941-57 My '15; Discussion. 34:2662-5 N '15
- Operating costs for oil-engine installations. Elec W 66:805-7 O 9 '15
- Power costs in a tenant building. A. A. Winter. Power 41:406 Mr 23 '15
- Power with by-product recovery. T. R. Wolleston. Engineer 119:326-7 Ap 2 '15; Same. Sci Am S 80:42-3 J 17 '15
- Reduction of power costs in a factory power plant. T. K. Roberts. diag. Ind Eng 14:445-50 D '14
- ✓ Relative costs of steam and hydro-electric power. Power 41:246 F 16 '15
- Saving in Federal building plant, Chicago. Power 41:610-11 My 4 '15
- Selecting construction power-plant system. Eng N 74:965-7 N 18 '15
- Selling current on a small margin; a small water and steam plant. T. Wilson. 11 diag. Power 42:493-501 O 12 '15
- Small isolated plant pays big dividends. T. Wilson. 11 Power 41:51-4 Ja 12 '15
- Small-town distribution and management cost. E. A. Wright. Elec W 65:338-41 F 6 '15
- Steam versus electricity in a corset factory. Elec W 65:110 Ja 9 '15
- Uniform electric rates based on costs. H. D. Jackson. Elec W 66:236-7 J 31 '15
- Why the isolated plant should win. H. D. Jackson. Power 40:846-7 D 15 '14
- Why the manufacturer prefers to use central station power. H. H. Holding. Elec W 65:1281-2 My 15 '15
- Power factor**
- Action of phase advancer in regulating power-factor of an induction motor. diag. Elec W 66:191 J 24 '15
- Investigation of dielectric losses with the cathode ray tube. J. P. Minton. 11 Am Inst El E Pro 34:1115-65 Je '15
- Power-factor as element of rates. F. Ghilardi. Elec W 66:410-11 Ag 21 '15
- Synchronous motors for power-factor correction. T. Schou. Elec W 66:1138-42 N 20 '15
- Power piping society**
- Standard power plant piping specification. Iron Age 96:338 Ag 12 '15
- Power plants**
- Accident prevention in power plants. Power 42:281-2 Ag 24 '15
- Analyzing the plant's condition. J. C. Hawkins. Power 41:239-40 F 16 '15
- Appearance as an element in power-plant value. E. D. Dreyfus. Power 41:138-9 Ja 26 '15
- Comparative steam and electric power layouts for a drainage pumping plant. plans Eng & Contr 42:412-14 O 28 '14
- Concrete-unit building construction at Cedars Rapids. 11 diag. Eng N 73:675-7 Ap 8 '15
- Mechanical plant of the Equitable building. 11 plan Arch & Bldg 47:191-5 My '15
- Panama-Pacific exposition; power plant apparatus. F. R. Low. 11 Power 42:225-9 Ag 17 '15
- Power-plant equipment for Massachusetts institute of technology. Elec R & W Elec'n 67:854 N 6 '15; Same. Power 42:752-3 N 30 '15
- Power-station economics. E. J. Billings. Power 42:816-17 Ag 31 '15
- Pre-efficiency. G. F. Willis. Power 41:500-1 Ap 13 '15
- Preventing losses in factory power plants. S. J. H. White. Iron Age 95:777-9, 848-9 Ap 8-15 '15
- Recording power plant operations. J. C. Smallwood. 11 diag. Eng M 49:818-36; 50:33-46, 262-75, 382-9 S-D '15
- Waste in the management of public utility power plants. F. W. Collins. Eng M 49:388-93 S '15
- See also* Boiler plants; Electric plants; Gas power plants; Hydroelectric plants; Solar power plants; Steam plants
- Accounting**
- Keeping power-plant accounts. C. J. Mason. Colliery 35:585-7 Je '15
- Piping**
- See* Piping
- Power transmission**
- Factory drives. G. Thompson. Metal Ind n s 18:9-10 Ja '15
- Flow of energy. R. A. Philip. diag. Am Inst El E Pro 34:455-84 Ap '15; Same. W Soc El J 20:444-72 My '15; Same cond. Power 42:352-5 S 7 '15; Abstract. Elec W 65:1035-6 Ap 24 '15; Discussion. W Soc El J 20:472-7 My '15
- New gasoline engine drive. Sci Am 112:288 Mr 27 '15
- Return-pipe compressed-air practice. F. Richards. Power 41:224-5 F 18 '15
- Steel-band power transmission; advantages over belt and rope shown in Germany. F. G. Broeker. Eng M 49:756-7 Ag '15
- See also* Belting; Chain gear; Compressed air; Electric transmission; Gearing; Hydraulic transmission; Machinery; Power plants; Pulleys; Rope driving; Shafting

Praseodymium

Revision of the atomic weight of praseodymium; the analysis of praseodymium chloride. G. P. Buxter and O. J. Stewart. *Am Chem Soc J* 37:516-36 Mr '15

Praseodymium chloride

Revision of the atomic weight of praseodymium; the analysis of praseodymium chloride. G. P. Buxter and O. J. Stewart. *Am Chem Soc J* 37:516-36 Mr '15

Precious stones

Identifying minerals and precious stones. *Sci Am S* 80:46 JI 17 '15

Testing

Tables for the determination of gems and precious or ornamental stones without injury to the specimen. A. J. Moses. *Sch Mines Q* 36:199-232 Ap '15

Precious stones, Artificial

Imitation precious stones. *Sci Am S* 80:199 S 25 '15

Precious stones, Synthetic

Technical utilization of precious stones. *Sci Am S* 80:163 S 11 '15

Premiums

Trading stamps and premium legislation. E. J. Buckley. *Metal Work* 83:763 My 21 '15

Preparation of copy. See Manuscripts, Preparation of

Preserving. See Canning and preserving

Press. See Newspapers

Press congress of the world

Organization. *Elec R & W Elec'n* 67:398 S 4 '15

Pressboard

Investigation of dielectric losses with the cathode ray tube. J. P. Minton. *Il Am Inst E E Pro* 34:1143-65 Je '15

Presses

Arbor and shaft straightening press. *Il Iron Age* 96:195 JI 22 '15

British Portland cement making machinery; briquetting presses. *Il diag Engineer* 120:148-51 Ag 13 '15

Cleveland shell banding and nosing press. *Il diag Mach* 22:253-4 N '15

Dial feed attachment for large shells. *Il Iron Age* 96:1222 N 25 '15

Hydraulic presses versus power presses for the manufacture of cartridges and shells; abstract. W. Rodger. *Am Soc M E J* 87:512-13 O '15

Pneumatic press for banding shrapnel. *Il Iron Age* 95:1338 Je 24 '15

Sheet metal bending and forming press. *Il Iron Age* 96:1229 N 25 '15

Stalp power presses. *Il Mach* 21:1026 Ag '15

Toggle power presses with dwelling blankholder. *Il Iron Age* 95:1167 My 27 '15; *Iron Tr R* 56:1114-15 Je 3 '15

Two-stage combination drawing press. *Il diag Iron Age* 95:504-5 Mr 4 '15

Wheel press for pressing pantograph shoes and testing springs and hose. R. R. Potter. *Il Elec Ry J* 44:1257-8 D 5 '14

Zeh & Hahnemann percussion press. *Il Mach* 21:1019 Ag '15

See also Hydraulic machinery

Presses, Printing. See Printing presses

Pressure

Effect of pressure on the diver. *Il Sci Am* 113:61+ JI 17 '15

Handy conversion table for low pressures. E. H. Peterson. *Power* 42:333 S 14 '15

See also Atmospheric pressure; Earth pressure; Wind pressure

Pressure gages

Differential gage for very small pressure differences. W. Masby, jr. *Il Eng N* 72:1214 D 31 '14

German apparatus for measuring pressure and velocity of gases; abstract. E. Stach. *diag Am Soc M E J* 37:715-16 D '15

Home-made pressure indicator for heating system. R. A. Langworthy. *diag Power* 42:725-6 N 23 '15

Inexpensive but accurate gage tester. F. W. Salmon. *Il Power* 42:552 O 19 '15

New condenser gage: the Scanes vacuum efficiency and absolute pressure gage. *diag Power* 40:877-8 D 22 '14

See also Manometers

Presswork. See Printing, Practical—Presswork

Price cutting

Another phase of the law of price cutting; manufacturer can refuse to sell price-cutter but combination of retailers cannot compel action. E. J. Buckley. *Metal Work* 83:685 My 7 '15

Bid cutter and the annual statement. C. Hopmann. *Metal Work* 83:224 F 5 '15

Committee's report on price maintenance. Horseless Age 35:199 F 10 '15

Cut price goods and restraint of trade. E. J. Buckley. *Metal Work* 83:577 Ap 16 '15

Important decision on the Clayton act. *Sci Am* 113:163-4 Ag 21 '15

Price cutting as viewed by the traveling salesman. J. K. Simpkins. *Metal Work* 83:433 Mr 19 '15

Price cutting is business philanthropy. P. F. Brandstedt. *Metal Work* 83:359 Mr 5 '15

Price-fixing decision of Illinois court. E. J. Buckley. *Metal Work* 84:475 O 8 '15

Three most important price-fixing cases now before the public—the Ford, Victor and Kellogg cases. E. J. Buckley. *Elec R & W Elec'n* 67:201 JI 31 '15; Same. *Metal Work* 83:887 Je 18 '15

Prices

Business methods for the plumber and fitter; standard selling prices. W. A. Fink. *Dom Eng* 72:171-2 Ag 7 '15

Standard prices for standard services. W. E. Clow. *Metal Work* 83:254 F 12 '15

See also Price cutting; Railroads—Rates; Wages

Primary batteries. See Electric batteries

Prime movers. See Engines

Princeton university

Design and construction features of the Palmer memorial stadium, Princeton, N. J. *Il diag plan Eng & Contr* 43:472-5 My 26 '15

Palmer memorial stadium at Princeton university. *Il diag plan Eng N* 72:1184-7 D 10 '14

Printers

Efforts of a novice to become a printer. J. T. Elliott. *Il Inland Ptr* 54:769-74 Mr '15

Precautions for the health of printers. E. A. Boyle. *Inland Ptr* 55:787-8 S '15

Taking care of the apprentice. F. J. Donnelly. *Inland Ptr* 55:197 My '15

Printing

History of composing-sticks. W. Sells. *Il Inland Ptr* 54:839-40 Mr '15

Outgrowths of letterpress. G. Sherman. *Inland Ptr* 54:197-200, 243-6, 490-3, 625-30, 777-80; 55:42-7, 177-82, 321-7 N '14-Je '15

See also Advertisements; Blind—Printing and writing systems; Color printing; Compound words; Electrotyping; Embossing (typography); Lettering; Linotype; Paper; Photography; Plate printing; Posters; Printing machinery; Printing offices; Printing presses; Proofreading; Stereotyping; Textile printing; Typesetting; Typesetting machines

Bibliography

Literature of typography. H. L. Bullen. *Inland Ptr* 50:678-82, 836-41; 51:56-9, 214-6, 353-61, 518-20, 692-3, 857-8; 52:72-5, 238-5, 396-9, 555-7, 708-11, 873-5; 53:73-5, 236-9, 396-400, 555-8, 697-9, 860-4; 54:61-4, 219-22, 537-9, 676-8, 797-9; 55:60-2, 492-6, 635-8, 779-82; 56:60-4, 345-51 F '13-N '14, Ja-Apr, JI-D '15

Exhibitions

Printing, advertising and allied trades exposition. *Il Inland Ptr* 55:547-50 JI '15

Ornaments

Conventional and illustrative decoration. J. L. Frazier. *Il Inland Ptr* 54:801-4 Mr '15

Extent of decoration. J. L. Frazier. *Inland Ptr* 55:497-8 JI '15

Proper use of initials. J. L. Frazier. *Inland Ptr* 55:499-502 JI '15

Printing—Continued

Specimens

Announcements and invitations. Inland Ptr 55: 656a-656h Ag '15
Department of reset designs. Inland Ptr 56: 64a-64h O '15
Reset specimens. Inland Ptr 55:352a-352h Je '15
Specimens. J. L. Frazier. See monthly numbers of Inland printer
Suggestions for cards and tickets. Inland Ptr 54:800a-800h Mr '15

See also Advertisements; Blotters; Business cards; Christmas printing; Labels; Menu cards; Programs

Study and teaching

Learning the printing trade in a newspaper office. W: H. Seed. Inland Ptr 56:343-6 N '15

China

Commercial press, limited, Shanghai, China. W: H. Seed. Inland Ptr 56:373-5 D '15

France

Literature of typography. H: L: Bullen. Inland Ptr 54:537-9, 616-8 Ja-F '15

Great Britain

Literature of typography. H: L: Bullen. Inland Ptr 54:797-9; 55:60-2, 492-6; 56:60-4, 845-51 Mr-Apr. JI, O, D '15

India

Printing in India. Inland Ptr 56:194-5 N '15

Printing, Practical

Creating a loss where profit is possible: problem of layout. C. M. Butler. Inland Ptr 54: 638-9 F '15

How to co-operate with the printer in the preparation of copy. J. T. Elliott. Inland Ptr 54:828-9 Mr '15

Printing and the care of printed stock. W. P. Baylie. Inland Ptr 54:828-9 Mr '15

Discussion. 1738-46 '14
Printing 1,000,000 transfers a day; the Third avenue railway system prints its own transfers at a net cost of 9 cents per 1000. Inland Ptr 54:703-4 Ap 10 '15

Type-designs in imitation of engraved work. J. L. Frazier. Inland Ptr 55:353-4 Je '15

Use and misuse of panels. J. L. Frazier. Inland Ptr 54:373-8 D '14

Value of the preparation of copy. F. A. Kidd. Inland Ptr 55:322-3 Ag '15

See also Blotters; Ink; Labels; Printing trade; Programs; Proofreading; Typesetting

Accounting

Composing-machines and cost-accounting. C: J. Schott. Inland Ptr 56:54 O '15

Monotype accounting problems. C. D. Bolinger. Inland Ptr 55:478-5 JI '15

Costs

Cost and method. B. Daniels. See monthly numbers of Inland printer

Where to charge the wash-up. Inland Ptr 55: 523-4 JI '15

Estimates

Estimating on blankwork. B. Daniels. Inland Ptr 55:803-5 S '15

Faculty of judgment. G. D. Crain, jr. Inland Ptr 55:338-5 D '15

How much profit? B. Daniels. Inland Ptr 55: 801-2 S '15

How to study an estimate. B. Daniels. Inland Ptr 55:857-8 Ag '15

Imposition, etc.

Handy rule-case for the make-up. Inland Ptr 56:402 D '15

Presswork

More about make-ready. R. O. Vandercook. Inland Ptr 54:359 D '14

Old Bill on the make-ready problem. A. J. Clark. Inland Ptr 54:337-40 D '14

Position of forms on pattern presses. F. L. Bush. Inland Ptr 55:766-7 S '15

Pressroom. See monthly numbers of Inland printer

Science of make-ready. H. W. Hacker. Inland Ptr 55:185-8, 329-33 My-Je '15
Where to charge the wash-up. Inland Ptr 55: 523-4 JI '15

See also Printing presses

Spacing

Correct spacing of body-matter. J. L. Frazier. Inland Ptr 55:355-8 Je '15

Distribution of white space. J. L. Frazier. Inland Ptr 55:355-8 D '15

Lesson in spacing. J. L. Frazier. Inland Ptr 56:353-4 D '15

Printing from plates. See Plate printing

Printing ink. See Ink

Printing machinery

Devices for automatically numbering checks, bonds, tickets, tags, etc., while being printed. Inland Ptr 54:844 Mr '15

Disposal of secondhand printing-office machinery. H. De Lisle. Inland Ptr 54:487-9 Ja '15

Electricity in magazine publishing. Inland Ptr 55: 66:105-7 Ja 16 '15

Electricity in printing plants. Inland Ptr 55: 66:351-5 My 8 '15

Electricity in the publishing business. Inland Ptr 55: 66:1069-72 D 5 '14

Use of electricity in a newspaper plant; motor and control equipment for production of New York times. Inland Ptr 55:1637-31 Je 19 '15

See also Linotype; Monotype; Printing presses; Typesetting machines

Printing offices

Chew printing house, Camden, N. J. Inland Ptr 54:11-12 Ja '15

Commercial press, limited, Shanghai, China. W: H. Seed. Inland Ptr 56:373-5 D '15

Modern printing-house construction. W. Essex. Inland Ptr 54:554-8 Ja '15

Motor-driven plant of the Dallas News. A. C. Scott. Inland Ptr 55:462-5 F 20 '15

Use of electricity in a newspaper plant; motor and control equipment for production of New York times. Inland Ptr 55:1637-31 Je 19 '15

Western newspaper union plant in Chicago. T: Wilson. Inland Ptr 54:12-5 Ja 5 '15

See also Cambridge university press; Chapple publishing company

Equipment

Financial view of overequipment. B. Daniels. Inland Ptr 55:100 Ap '15

What is overequipment? Inland Ptr 55:522 JI '15

Management

After the cost system—specialization of equipment and product. J. B. Thompson. Inland Ptr 54:634-6 F '15

Efficiency in the small shop. H. Hillman. Inland Ptr 55:609-14 Ag '15

How much composing-room? B. Daniels. Inland Ptr 54:835-6 Mr '15

Inventory for printers. Inland Ptr 54:692-3 F '15

Methods of conserving cost in printing-offices. W: Sells. Inland Ptr 54:397-9 D '14

Office clerk problems—adjusting complaints. C: Fried. Inland Ptr 55:188-9 My '15

Office clerk problems—collections. C: Fried. Inland Ptr 55:186-8 N '15

Office clerk problems—relations with the salesman. C: Fried. Inland Ptr 55:620-1 Ag '15

Organizing a sales campaign. F. Ford. Inland Ptr 55:188-90 N '15

Printer and his business. L: H. Grieve. Inland Ptr 54:652-4, 817-18; 55:63-4 F-Apr '15

Stake in the business. G. D. Crain, jr. Inland Ptr 55:239-40 My '15

See also Printing trade

Moving

Western newspaper union solves problem of moving its large plant without interrupting business. J. T. Elliott. Inland Ptr 54:406-8 D '14

Valuation

Values of printing offices. C: S. Brown. Inland Ptr 55:43-5 O '15

Printing presses

Application of electric motors to printing presses. W: C. Yates. Am Inst ME Pro 34: 3018-23 D '15

Printing presses—Continued

- Electric motor in the printing industry. W. C. Yates. *Il Gen Elec R* 18:1158-12 D '15
Electrically driven vacuum sheet-cleaner for cylinder presses. *Il Elec R & W Elec'n* 66: 175 Ja 23 '15
Getting best service from printers' rollers. R. E. Haynes. *Inland Ptr* 55:678-7 Ag '15
New type of rapid rotary printing-press. *Inland Ptr* 55:585 J1 '15
Seventy years of inventions. *Sci Am* 112:510-17 Je 6 '15
What causes the packing on a cylinder press to creep or bunch forward? W. S. Huson. *Inland Ptr* 55:350 Je '15

See also Printing, Practical—Presswork

Printing telegraph. *See* Telegraph, Printing

Printing trade

- Do your own printing business. E. Wolcott. *Inland Ptr* 56:199-200 N '15
How to sell a catalogue. R. C. Fay. *Inland Ptr* 55:104-6 Ap '15
Long price-list. *Inland Ptr* 54:501-2 Ja '15
New field for the printer; advertising on paper wrappers. T. H. Stark. *Inland Ptr* 56: 45-7 O '15
Peculiarities of the printing business. *Inland Ptr* 55:663 Ag '15
Personal element in the printing business. W. E. Rudge. *Inland Ptr* 56:247 N '15
Please wake up. W. R. Colton. *Inland Ptr* 54: 833-4 Mr '15
Remedy for overequipment—better selling. F. Webster. *Inland Ptr* 54:387-8 D '14
Small shop. C. H. Armstrong. *Inland Ptr* 54: 781-8 Mr '15
Special prices on paper to printers. B. Hope. *Inland Ptr* 54:341-3 D '14

Advertising

- Advertising for printers. J. L. Frazier. *Inland Ptr* 54:513-16 Ja '15
Making printing a sales force. I. S. Paull. *Inland Ptr* 55:668-70 Ag '15
Printers' blotters. *Inland Ptr* 55:784a-784h S '15
Printometer
Demand indicators: maxicator and printometer types. *Il Munic J* 38:906 Je 24 '15
Prismatic compass. *See* Compass, Prismatic
Prison labor. *See* Convict labor
Prisons
Many jails in this country declared insanitary. *Il Dom Eng* 73:16-17 O 3 '15
Prisons, Military. *See* Concentration camps
Private car lines
Private car lines not common carriers. *Ry Age* 58:1051-2 My 21 '15
Prizes. *See* Rewards, prizes, etc.
Proctor (John C.) recreation center. *See* Peoria, Illinois—John C. Proctor recreation center
Producer gas. *See* Gas

Productograph

- Watching distant machines from a desk. H. T. Wade. *Il Sci Am* 112:161-2 F 13 '15

Professional education

- Education for professional success. S. H. Bun-
nell. *Eng Rec* 71:688-9 My 29 '15
Training for the municipal service. C. L. King. *Sci Am S* 79:118-19 F 20 '15; Same
cond. with discussion. *Am Soc M E J* 37:98-
101 F '15

Professional ethics

- Circular of advice relative to principles of the
professional practice and the canons of
ethics of architects. *Am Inst Arch J* 8:108
Mr '15

See also Engineering ethics

Profiling

- Mechanical production of drop forging dies.
E. K. Hammond. *Il Mach* 22:1-5 S '15
Profile milling and grinding. E. Lea. *Il diag*
Mach 21:821 Je '15
Wilzin process for flat-ware manufacture. *Il*
Mach 22:76-7, 80 S '15
Wilzin process of flatware manufacture. *Il*
Metal Ind n s 13:374-7 S '15

Profit sharing

- Industrial betterment. F. E. Cardullo. *Mach*
22:183-4 N '15

- Is a profit sharer always a partner? E. J.
Buckley. *Metal Work* 82:303 D 18 '14
Making of men, motor cars and profits of the
Ford motor company. O. J. Abell. *Il Iron Age*
95:33-41+ Ja 7 '15
Making the workmen happy. H. Whitehead.
Dom Eng 72:33-4 J1 10 '15
Model industrial village in Illinois town. I. M.
Tarbell. *Metal Work* 83:409 Mr 19 '15
Profit sharing plan explained to the Federal
commission on industrial relations. H. Ford.
Iron Tr 11: 56:234-5 Ja 28 '15
Washington railway & electric company's
profit-sharing checks. C. P. King. *Elec Ry*
J 45:157-8 Ja 16 '15

Programs

- Specimens. *Inland Ptr* 55:496a-496h J1 '15

Prohibition

- Alcohol and inefficiency. *Eng & Min J* 99:461
Mr 6 '15

Projectiles

- Aeroplane darts and fire darts. *Il Sci Am S*
79:124 F 20 '15
Field gun and aerial projectiles: construction
of shrapnel, smoke, and searchlight shells
and bombs for the use of aircraft. *Il Sci Am*
111:452-3+ D 5 '14
How rifle bullets fly. E. C. Crossman. *Il Sci*
Am 113:24+ J1 3 '15
Naval projectile supply. *Il Iron Age* 96:1186-7
N 15 '15
Rifling cannon. F. J. B. Cordeiro. *Sci Am S*
79:334 My 22 '15
Rifling of firearms. A. Keller. *diag Sci Am*
S 79:277-8 My 1 '15
Steel darts. *Sci Am* 112:156 F 13 '15
Windage of shot. *Sci Am* 112:308 Ap 3 '15
See also Ammunition; Bullets; Grenades;
Shells; Shrapnel shells

Manufacture

- Grinding large shells and projectiles. C. O.
Smith. *Il diag Iron Age* 95:445-7 F 25 '15
Hydraulic presses versus power presses for
the manufacture of cartridges and shells;
abstract. W. Rodger. *Am Soc M E J* 37:612-
13 O '15
Machinery for the production of projectiles. *Il*
diag Engineer 119:572-6, 599-602, 634-6;
120:8, 116-17, 278, 358-9 Je 11-J1 2, 30, S 17,
O 8 '15
Machines for making projectiles. *Il Iron Tr*
R 56:383-4+ F 18 '15
Machining high-explosive shells. C. A. Tupper.
diag Iron Age 96:806-9 O 7 '15
Machining projectile shells. *Il diag Iron Age*
96:1098-1100 N 4 '15
Single-purpose chucking turret lathe brought
out by the Cleveland crane & engineering
company, Wickliffe, Ohio. *Il Iron Age* 96:873
O 14 '15
Three projectile machines. *Il Iron Age* 95:402-
3 F 18 '15

Projectiles, Photography of. *See* Photography of
projectiles

Projection of light. *See* Light projection

Projectors. *See* Light projection

Promotion. *See* Employees

Pronunciation. *See* Phonetics

Proofreading

- Copy and proofreading. F. H. Teall. *Inland Ptr*
54:631-4 F '15
Correction of grammar by proofreaders. F. H.
Teall. *Inland Ptr* 54:776-7 Mr '15
Printing and the care of printed stock. W. P.
Baylis. *Am Gas Inst Pro* 9:pt 2, 1726-7 '14
Proofreading and authorities. F. H. Teall.
Inland Ptr 55:333-5 Je '15
Proofroom. F. H. Teall. *See* monthly numbers
of *Inland printer*
Varying styles and proofreading. F. H. Teall.
Inland Ptr 55:468-70, 614-16, 756-9; 56:58-9,
202-3, 326-8 J1-D '15
See also Compound words; Punctuation;
Spelling

Propane

- Vapor pressures of propane, propylene and
normal butane at low temperatures. G. A.
Burrell and I. W. Robertson. *Am Chem Soc*
J 37:2188-93 S '15

Propellers

- Comparison between the results of propeller experiments in air and water. A. W. Johns. *Engineer* 119:385-6 Ap 2 '15
- Design of small screw propellers. D. H. Jackson. *diag Int Marine Eng* 20:146-50 O '15
- Dyson chart system of propeller design. J. S. Maiseed. *diag Int Marine Eng* 20:74-5 F '15
- Negative slip of propellers. *Engineer* 120:265 S 17 '15
- Propeller blade layout. H. M. Adams. *diag Int Marine Eng* 20:85-7 F '15
- Recent tests on flow of water acted on by a propeller; abstract. *Flamm. Am Soc M E J* 37:559 S '15
- Revival of the reversible blade propeller. *Il diags Engineer* 119:295-7, 306 Mr 26 '15
- Theory of propulsion and the screw propeller. F. W. Lanchester. *Engineer* 119:335 Ap 2 '15
- Weights of solid four-blade propellers. L. A. Baier. *Int Marine Eng* 20:220 My '15

Property

- Reclaiming property after a transfer. E. J. Buckley. *Metal Work* 82:772 D 11 '14
- See also Real estate; Sales*

Propylene

- Vapor pressures of propane, propylene and normal butane at low temperatures. G. A. Burrell and L. W. Robertson. *Am Chem Soc J* 37:2183-93 S '15

Prospecting

- Exploration work on Cuyuna range. P. W. Donovan. *Iron Tr R* 57:534+ S 16 '15
- Prospecting for minerals in Ontario. J. A. Macdonald. *Eng & Min J* 99:1067-8 Je 19 '15
- Prospecting methods at Fairbanks. H. I. Ellis. *Il diags Eng & Min J* 99:805-10 My 8 '15
- Requirements for prospecting dredging ground in the Yukon. J. A. Macdonald. *Eng & Min J* 99:828-9 My 8 '15
- Sampling of churn-drill prospect holes. F. G. Moses. *diag Eng & Min J* 100:301-4 Ag 21 '15
- Wisconsin zinc district. H. C. George. *Il diags map Eng & Min J* 100:295-300, 341-4 Ag 21-23 '15

See also Assaying

Proteins

- Combination of protein with halogen acids. J. H. Long and M. Hull. *Am Chem Soc J* 37:1593-1606 Je '15
- Nitrogen-protein table. R. S. Callaway. *J Ind & Eng Chem* 7:161 F '15
- Origin of the humin formed by the acid hydrolysis of proteins. R. A. Gortner and M. J. Blish. *Am Chem Soc J* 37:1630-6 Je '15
- Presence of proteoses and peptones in soils. E. H. Walters. *J Ind & Eng Chem* 7:860-3 O '15
- Protein charts. A. Silverman. *J Ind & Eng Chem* 7:533-4 Je '15
- Studies on nitrated proteins: the conversion of fibroin into nitro-fibroin (fibroin-xanthoproteic acid). T. B. Johnson, A. J. Hill, and L. P. O'Hara. *Am Chem Soc J* 37:2170-8 S '15
- Studies on nitrated proteins: the determination of the structure of nitrotyrosine. T. B. Johnson and E. F. Kohmann. *Am Chem Soc J* 37:1863-84 Ag '15
- Studies on nitrated proteins: the identifications of 3-nitrotyrosine among the products of hydrolysis of nitrated fibroin. T. B. Johnson. *Am Chem Soc J* 37:2598-603 N '15
- Studies on nitrated proteins: the syntheses of 3, 5-dinitrotyrosine. T. B. Johnson and E. F. Kohmann. *Am Chem Soc J* 37:2164-70 S '15
- Utilization of ingested protein as influenced by undermastication and overmastication. L. F. Foster and P. B. Hawk. *Am Chem Soc J* 37:1347-61 My '15

Proteolysis

- Acid ratio: a new method for determining the proteolytic strength of germinated grain in technical analysis. C. A. Nowak. *J Ind & Eng Chem* 7:858-9 O '15

Providence, Rhode Island**Public buildings**

- Civic architecture in Providence. *Am Inst Arch J* 3:386-7 S '15

Public works

- Harbor development for Providence, R. I. plan *Eng & Contr* 43:sup21 Je 30 '15

Water supply

- Water-supply improvements for Providence. *Eng N* 74:669 S 30 '15

Pruning

- Timely suggestions for the pruner of ornamental and shade trees. J. J. Levison. *Il Am For* 21:931-2 S '15

Prussian blue. See Cyanogen**Przemysl**

- Recapture of Przemysl. *Il Sci Am* 113:251 S 18 '15

Psychoanalysis

- Psychoanalytic movement: its services in the prevention of insanity. J. J. Putnam. *Sci Am* S 78:391, 402 D 19-26 '14

Psychology

- Modern psychology; the present study of character and temperament. J. Jastrow. *Sci Am* S 80:306-7 N 13 '15

See also Animal intelligence; Color sense

Psychology, Experimental

- Study of animal and human behavior. L. K. Hirschberg. *Il Sci Am* 112:491-2 My 29 '15

Psychology, Pathological

- Mental tests of dementia. B. Hart and C. Spearman. *Sci Am* S 80:206-8 S 25 '15

- Psychoanalytic movement: its services in the prevention of insanity. J. J. Putnam. *Sci Am* S 78:391, 402 D 19-26 '14

Psychrometers

- Measurements for the household. *Il U S Bur Stand Circ* 55:114-17 '15

Public accountants. See Accountants, Public**Public buildings**

- Operating data in connection with federal buildings under control of the Treasury department. N. S. Thompson. *Heat & Ven* 12: 13-17 J1; 17-20 Ag '15

See also Almshouses; Baths, Public; Capitol buildings; Library architecture; Municipal buildings; Post office buildings; Prisons; Public comfort stations; Public works; Schoolhouses

Public comfort stations

- Bandstand and comfort station. *Il plan Bldg Age* 37:67-3 N '15
- Comfort station for Springfield, Massachusetts. *Il plan Metal Work* 83:228+ F 5 '15
- New Boston comfort station. W. B. Conant. *Il Munic J* 39:473 S 23 '15
- New public comfort station in Cincinnati. *Il plan Metal Work* 83:430-2 Mr 19 '15
- Planning public comfort stations. *Metal Work* 83:542 Ap 9 '15
- Plumbing in Oakwood park comfort station, Lorain, O. *Il plan Metal Work* 84:235-6 Ag 20 '15
- Plumbing in small park comfort station. *Il plan Metal Work* 83:155-6+ Ja 22 '15
- Public-comfort station built in Salt Lake City, Utah. S. Q. Cannon. *Il Eng N* 73:937 My 13 '15
- Public comfort station, Dallas, Tex. J. Boll. *Il Dom Eng* 70:41 Ja 9 '15
- Public comfort station in Dallas, Texas. *Metal Work* 83:249-50 F 12 '15
- Public comfort station now under construction in Springfield, Mass., at a cost of twenty-four thousand dollars. H. L. Sprague. *Il plan Munic J* 38:218-19 F 18 '15
- Sanitary equipment of Monrovia, California. *Il plan Metal Work* 84:362+ S 17 '15

Public health

- American public health association, 42d annual meeting. *Munic J* 39:438-4+ S 23 '15

- Plumbing and its relation to public health. W. C. Groeniger. *Metal Work* 83:415-16+ Mr 19 '15

See also Building laws; Disinfection and disinfectants; Dust prevention; Factory sanitation; Hookworm disease; Housing problem; Military hygiene; Physical examinations; Plumbing laws and regulations; Public comfort stations; Railroads—Sanitation; Refuse and refuse disposal; Safety devices and

Public health—Continued
measures; Sanitary engineering; Sanitation; School hygiene; Sewage disposal; Street cleaning; Water pollution; Water supply; also names of cities, subheads Sanitary affairs and Sewerage

Public health boards. See Health boards

Public health laws

New York city sanitary code. Metal Work 83: 348 Mr 5 '15

Removal of dead animals in cities. A. L. Bostwick. Munic J 38:64-5 Ja 21 '15

State control of water-supply and sewerage in Kansas. Eng N 73:209 F 4 '15

See also Building laws; Factory laws; Heating—Laws and regulations; Plumbing laws and regulations; Sewerage—Laws; Ventilation—Laws

Public lands

United States mining statutes annotated; reservations, rights of way, withdrawals. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1159-66, 1138-93, 1388-94 '15

Public offices

See also Public service

Public schools

Master mechanics to teach in public schools. W: Wirt. Metal Work 83:341 Ja 11 '15

Public service

Business men and public service. Ry R 55:688-90, 716-18, 775-7; 56:93-5, 127-9, 193-4, 207-8 D 5-12, 26 '14, Ja 16-23, F 6-13 '15

Government's business. It needs regulation by business men. Ry R 55:746-8 D 19 '14

See also Municipal employees

Public service commissions

Capable men as public commissioners. Eng & Contr 43:2 Ja 6 '15

Commission regulation. Elec Ry J 45:810 Ap 24 '15

Continuity of policy and experienced personnel necessary for service boards. Eng Rec 72: 170-1 Ag 7 '15

Engineers and public-service commissions. Eng N 74:247-8 Ag 5 '15

Engineers as members of public service commissions. C: H. Ledlie. Eng N 73:547-8 Mr 13 '15

Illinois utilities commission and the water works companies. C. G. Bennett. Am Water Works Assn J 2:382-9 Je '15

New York commission lacks power to increase rates beyond legislative maximum. Elec Ry J 46:126 Jl 17 '15

New York commissions. Elec W 65:375 F 6 '15

New York, New Jersey and New Hampshire state commission reports. Ry Age 58:138-9 Ja 22 '15

Publicity work of public service commissions. Elec Ry J 44:1240-3 D 5 '14

Qualifications of public service commissioners. Ry Age 59:244-5 Ag 6 '15

State commissions with jurisdiction over electrical utilities; map. Elec W 65:1597 Je 19 '15

State regulation of municipally owned plants. C. M. Larson. Am Water Works Assn J 2:515-37 S '15

To get the best men for commissioners. G: W. Anderson. Ry Age 57:1198 D 25 '14

Work of the commissions. Elec Ry J 45:5-6 Ja 2 '15

Work of the Illinois utilities commission; with discussion. R. M. Feustel. W Soc E J 19:985-78 D '14

See also New York public service commission; Public service corporations—Regulation

Public service corporations

Constructive policy for public service corporations. C: Day. Eng M 48:599-603 Ja '15

International engineering congress; report of electrical and related sessions. San Francisco, Sept. 20-25. Elec R & W Elec'n 67: 617-18 O 2 '15

M. T. Cooke finds fault with utilities. Elec W 65:755-6 Mr 20 '15

Oklahoma gas, electric & street railway association 4th annual convention. Elec W 65: 1340 My 22 '15

Public service. T. N. Vail. Elec R & W Elec'n 66:534-5 Mr 20 '15

Waste in the management of public utility power plants. F. W. Collins. Eng M 49:888-93 S '15

See also Electric service companies; Express companies; Franchises; Gas companies; Government ownership; Municipal ownership; Public service commissions; Railroads; Street railroads; Telegraph; Telephone companies; Water companies

Accounting

Ancient and modern accounting for public utilities. E. A. Pratt. Am Water Works Assn J 2:371-81 Je '15

Neglected phases of accounting. H: R. Hatfield. Elec Ry J 48:799-802 O 16 '15

Rents in public utility accounting. J: Bauer. J Account 20:21-7 Jl '15

Work of public service accountants. H. S. Swift. Elec Ry J 44:1298 D 12 '14

See also Electric service companies—Accounting; Gas companies—Accounting; Waterworks—Accounting

Advertising

Co-operative power customers' display at Hartford. Il Elec W 65:303 Ja 30 '15

Finance

Factors involved in establishing service, charge and rate of return of public utilities. O. E. Norman. Am Gas Light J 102: 263, 267-9 Ap 26 '15

Financing problems of public utilities companies. W: H. Hodge. Am Gas Light J 102: 215, 218-19 Ap 5 '15

Financing public utility properties. A. Cooke. Am Gas Light J 103:154-6 S 6 '15

Investment banker and the engineer. C. A. Hobeln. Assn Eng Soc J 54:243-57 Je '15

Franchises

Modern franchise for a public service corporation. C: C. Brown. Munic Eng 48:89-93 F '15

Public service corporation and the municipality; with discussion. J. Logan. Boston Soc C E J 2:223-59 Je '15

Law

Maine public utilities act. Elec W 65:68 Ja 2 '15

Rights of railroad stockholders; minority report. Ry R 56:667-8 My 15 '15

Public relations

Address at mid-year dinner. C. L. Allen. Elec Ry J 45:280 F 6 '15

Influence of good-neighborliness; the public utility as a human institution. Il Elec W 65: 941-3 Ap 10 '15

Large questions of public policy before the electrical industry. W. W. Freeman. Elec W 65:16-17 Ja 2 '15

Mixing as an asset of public utility business. H. S. Cooper. Elec Ry J 45:842-3 My 1 '15

Pointed paragraphs on public policy. Elec W 64:1254 D 26 '14

Public service and publicity. N. C. Kingsbury. Elec Ry J 45:223-6; Discussion. W. C. Ely; E. G. Connette. 45:216-17 Ja 30 '15

See also Electric Railroads—Public relations; Electric service companies—Public relations

Rates

Basing rates upon cost of service. Elec R & W Elec'n 66:61-2 Ja 9 '15

Fair interest on investment in public utilities. H. J. Davies. J Account 19:34-45 Ja '15

Same cond. Elec Ry J 44:1287-9 D 12 '14

Public versus the public service corporation. H: D. Jackson. Eng M 49:402-9 Je '15

Rates different not necessarily discriminatory. Am Gas Light J 103:335 N 22 '15

State regulation of municipally owned plants. C. M. Larson. Am Water Works Assn J 2:522-37 S '15

Value of service and cost of service in rate-making. C. M. Jansky. Elec R & W Elec'n 66:80-1 Ja 9 '15

See also Electric power—Rates; Gas rates; Telephone—Rates; Water rates

Public service corporations—Continued

Regulation

- Address before the Indiana gas association. A. C. Blinn. Am Gas Light J 102:177-8 Apr '15
- Application of the theories of public regulation to the management of utilities. D. A. Graham. Am Water Works Assn J 2:324-43 Je '15
- Charges, connections and extensions; order of California railroad commission. Am Gas Light J 103:188-9 S 20 '15
- Competition in small-city utility operation. B. A. Brackenbury. Elec W 66:4-5 Jl 3 '15
- Conditions that will encourage hydroelectric development. J. A. Britton. Elec W 64:1236-8 D 28 '14
- Dual ownership of public utilities in Alsace. Al. A. Jewett. Munic Eng 49:65-6 Ag '15
- Effect of the war on regulation of public utilities. N. T. Guernsey. Elec W 65:13-14 Ja 2 '15
- Fair treatment of public utilities. A. B. Leach. Elec Ry J 46:670-1 O 2 '15
- Fundamental planks in a public-utility program. D. F. Wilcox. Eng N 73:1215 D 17 '14
- Idaho power and light company granted a certificate of convenience and necessity. Elec R & W Elec'n 66:249-50 F 6 '15
- Municipal co-operation in public utility management. P. J. Kealy. Am Inst E E Pro 34:2263-74 O '15; Same cond. Elec Ry J 46:861-3 O 23 '15
- Municipal regulation of public utilities. J. H. Roemer. Am Gas Light J 103:97-100 Ag 16 '15
- National Bureau of standards and standards for public utilities. H. T. Wade. Eng M 49:240-51 My '15
- New York second district: filing of schedules. Elec R & W Elec'n 66:298 F 13 '15
- Permitting and limiting public-utility competition. Eng N 73:690 Ap 8 '15
- Public utilities work of the Bureau of standards. Elec W 64:1187-8 D 19 '14
- Public versus the public service corporation. H. D. Jackson. Eng M 49:402-9 Je '15
- Regulation. W. J. Calhoun. Am Gas Light J 102:244-54 My 10 '15
- Regulation of public utilities. L. A. Busby. Elec Ry J 46:1081-4 N 27 '15; Abstract. Elec R & W Elec'n 67:986 N 27 '15
- Results of the war for public service commissions to consider. H. Floy. Elec W 65:15-16 Ja 2 '15
- Right of appeal in New Hampshire. Elec W 65:1485-6 Je 5 '15
- Shall American industry be socialized? F. C. Henderschott. Am Ind 16:23-23 Jl '15
- State control of city-owned utilities much needed. Eng N 74:658-9 S 30 '15
- State regulation. W. J. Norton. Elec R & W Elec'n 66:632-3 Ap 3 '15
- State regulation of municipally owned plants. C. M. Larson. Am Water Works Assn J 2:515-37 S '15
- See also Electric service companies—Regulation; Gas companies—Regulation; Railroads and state; Waterworks—Regulation

Taxation

- Increased taxation in Wisconsin and its effect upon public service companies. R. Gruhl. Elec W 65:259 Ja 23 '15; Same. Elec Ry J 45:234 Ja 30 '15
- Should utilities be assessed by public service commissions? F. N. Fletcher. Elec Ry J 46:445 S 11 '15
- Tax assessments on utility properties subject to review in New Jersey. Elec R & W Elec'n 66:128 Ja 16 '15

Valuation of property

- Appellate court of the state of New York and the question of allowances for paving over mains in valuation work. J. W. Alvord. Am Water Works Assn J 2:465-81 S '15; Same cond. Eng & Contr 43:532-5 Je 16 '15; Discussion. Am Water Works Assn J 2:482-93 S '15
- Appraisal of overhead costs. H. P. Gillette. Elec W 66:41-2 Jl 3 '15

- Court decisions showing present value to be the only value for rate making purposes. H. P. Gillette. Eng & Contr 43:302 Mr 31 '15
- Depreciation and valuation for rate making. L. H. Haney. J Account 19:344-51 My '15
- Depreciation in public utilities. Elec W 66:743 O 2 '15
- Engineers as arbiters of public equity and justice. W. M. Daniels. Eng Rec 70:823-4 D 5 '14
- Fair interest on investment in public utilities. H. J. Davies. J Account 19:34-45 Ja '15; Same cond. Elec Ry J 44:1287-9 D 12 '14
- Fair overhead charges allowed; Bronx gas and electric company. Elec Ry J 46:831 O 16 '15
- Foundation principles of utility valuation, with special application to resettlement plans. B. J. Arnold. Eng N 74:859 O 28 '15
- Franchise value. Elec R & W Elec'n 65:1180-2 D 19 '14
- Fundamentals of appraisal and valuation. M. B. Cooley. Elec Ry J 46:913 O 30 '15
- Idaho court overrules depreciation deduction. Eng Rec 72:480-1 O 16 '15
- In rate-fixing by commission, should depreciation be deducted from plant valuation? A. C. Humphreys. Am Gas Inst Pro 9:pt 2, 1557-82; Discussion. 9:pt 3, 1638-82 '14
- Neglected phases of accounting. H. R. Hatfield. Elec Ry J 46:799-802 O 16 '15
- New Jersey decision. H. S. Welsh. Elec Ry J 45:57 Ja 2 '15
- Pacific gas & electric company valuation methods. Elec W 65:569-70 F 27 '15
- Papers on public utility valuation; abstracts. J. W. Alvord; J. H. Gandolfo. Elec Ry J 44:1252 D 5 '14
- Portland valuation brief filed. Elec Ry J 46:922 O 30 '15
- Principles of valuation. J. W. Alvord. Eng Rec 70:677 D 19 '14
- Sandpoint, Idaho, water company case. Elec R & W Elec'n 67:897-8 N 13 '15
- Sinking funds in rate valuations. W. H. Lawton. J Account 19:191-7 Mr '15
- Utilities bureau convention, Philadelphia, 1915; valuation conference. Eng N 74:1002-3 N 18 '15; Elec Ry J 46:990-5, 1031-4 N 13-20 '15; Elec R & W Elec'n 67:939-41 N 20 '15; Elec W 66:1135-9 N 20 '15; Eng Rec 72:643-5 N 20 '15; Munic J 39:788-9 N 18 '15
- Utility appraisals. G. B. Saunders. Elec Ry J 45:981-5 My 23 '15
- Valuation of Cincinnati utility. Elec W 64:1088 D 5 '14
- Valuation of franchises. Elec Ry J 44:1331-2 D 19 '14
- Valuation of public utilities discussion by Am. Inst. E. E. Elec R & W Elec'n 67:568-9 S 25 '15
- Valuation of public utilities for rate-making purposes. C. C. James. J Account 20:173-8 S '15
- Why appraisal is not valuation. G. S. Binckley. Eng Rec 72:515-17 O 23 '15
- See also Electric railroads—Valuation; Railroads—Valuation; Street railroads—Valuation; Waterworks—Valuation
- Public speaking. F. L. Hutchinson. Eng Rec 72:672 N 27 '15
- Public utilities. See Public service corporations
- Public utility association of West Virginia West Virginia managers convene. Elec W 66:1182-3 N 27 '15
- Public works
- Alternate specifications for public work are legal. D. T. Pierce. Eng N 74:1048-50 N 25 '15
- Commission plan for control of public works. Eng N 73:1186-8 Je 17 '15
- Direct control over construction materials is feature of 100-mile Winnipeg aqueduct. Il Eng Rec 71:594-6 My 8 '15
- Engineers and the New York state constitutional convention. Eng N 73:602-3 Mr 25 '15
- Engineers discuss changes in New York state constitution. Eng Rec 71:382 Mr 20 '15
- How shall patented materials or processes on public works be handled? D. B. Luten; S. Whinery. Eng Rec 72:546-9 O 30 '15
- How shall patented materials or processes on public works be handled? G. C. Warren; S. Whinery. Eng Rec 72:511-12 O 23 '15

Public works—Continued

Results of task work without bonus in cleaning filter sand at Philadelphia. S. E. Thompson. Eng Rec 70:608-9 D 5 '14; Same cond. with discussion. Am Soc M E J 37:103-4 F '15; Same cond. (Efficiency study of filter cleaning). Munic J 38:353-4 F 23 '15

See also Contracts, Letting of; Municipal engineering; Public buildings; Roads

Publicity

American iron and steel institute presidential address. E. H. Gary. Iron Tr R 57:849-51 O 28 '15; Same. Iron Age 96:985-8 O 28 '15

Engineer and publicity, with special reference to the publicity work of the Cleveland engineering society; abstract. C. E. Drayer. Eng & Contr 42:374-5 D 23 '14; Abstract, with discussion. Am Soc M E J 37:88-92 F '15

Future of the engineering profession. A. J. Himes. Eng Rec 72:663 N 27 '15

Interesting the non-electrical public. F. H. Gale. Il Elec W 66:1184-6 N 27 '15

Practical value of publicity to the water works man. S. C. Hadden. Am Water Works Assn J 2:359-66; Discussion. D. R. Gwinn. 2:366-70 Je '15

Publicity for engineering work. M. L. Cooke; C. E. Drayer; S. H. Ankeney. Eng Rec 70:644-8 D 12 '14

Publicity for the engineer and its importance; excerpts. C. E. Drayer. Eng N 73:1018-19 My 27 '15; Eng Rec 71:718-19 Je 5 '15

Practical value of publicity to the water works man. S. C. Hadden. Am Water Works Assn J 2:359-66; Discussion. D. R. Gwinn. 2:366-70 Je '15

Publicity necessary for city manager success. W. Miller. Eng Rec 72:668 N 27 '15

Publicity work of public service commissions. Elec Ry J 44:1240-3 D 5 '14

See also Advertising; Electric railroads—Public relations; Public service corporations—Public relations; Railroads—Public relations; Street railroads—Public relations

Publishing houses

Equipment of large publishing house; power plant, interior wiring and special features of the Curtis publishing company's building, Independence square, Philadelphia. Il Diags plans Elec W 65:905-11 Ap 10 '15

Hill building, New York. Il Arch & Bldg 46:447-50 N '14

Hill building; special building design for special use. Il diags plans Eng N 72:1241-8 D 24 '14

New home of the Engineering and mining Journal. Il Eng & Min J 98:1143-4 D 26 '14

Philadelphia publishing house; Farm Journal building. Il plan Brickb 24:201 Ag '15

See also Printing offices

Pulleys

Cork insert pulley. Il Eng M 40:supl-2 S '15

Cutter automatic cutout pulleys. Il Elec R & W Elec'n 66:1129 Je 12 '15

Designing cone pulleys; graphical method of finding the radii. R. C. H. Heck. Mach 21:291-3 D '14

Grinding cone pulleys at the Norton plant. H. W. Ault. Il diags Mach 22:32 S '15

Grinding crowned pulleys. H. W. Dunbar. Il diags Mach 21:893-4 J1 '15

Making the Gilbert wood pulley. Il Mach 21:483-6 F '15

Recent tests of the effective force between driving belt and pulleys; abstract. A. Friedrich. Am Soc M E J 37:551-5 S '15

See also Belting; Rope driving

Pullman company

Investigation of wages paid by Pullman company. Ry Age 58:786 Ap 9 '15

Pumping

See also Mine pumping; Pumping stations; Pumps

Cost

Comparing triple-expansion and centrifugal pumps. G. M. Peek; G. H. Gibson. Eng N 74:1044-5 N 25 '15

Comparison of pumping costs. C. F. Herington. Ry Age 59:108-9 J1 16 '15

Cost of drainage pumping in southern Louisiana. C. W. Okey. Eng N 74:733-5 O 14 '15

Cost of electric pumping for irrigation. Il map Elec W 66:68-71 J1 10 '15; Excerpts. Eng Rec 72:257-8 Ag 28 '15

Cost of pumping for irrigation. G. E. P. Smith. Eng & Contr 41:148-50 Ag 25 '15

Electric pumping at Fairmount, Ind.; comparison of service by reciprocating steam pumps and by electrically driven centrifugal pumps. J. A. Randolph. Munic J 39:356-8 S 2 '15

Electricity for irrigation pumping. Il Elec R & W Elec'n 66:1022-8 Je 5 '15

First cost and cost of operation of irrigation pumping plants. H. D. Hanford. Eng & Contr 43:491-2 Je 2 '15

How low fixed charges favor centrifugal pumps. G. H. Gibson. Il plan Eng N 74:886-8 N 4 '15

Increase in operating costs due to pumping, Minidoka irrigation project. Eng & Contr 43:348 Ap 14 '15

Irrigation pumping in the coast states. Il map Elec W 65:1399-1408 My 29 '15

New well water supply of Galveston, Texas. H. G. Wheaton. Il Eng & Contr 44:385-6 N 17 '15

Saving \$1,500 a month by using electric pumps. E. E. Yensel. Il diags Elec W 66:400-1 Ag 21 '15

Study of a water supply by pumping for concrete road construction. plan Eng & Contr 43:467-8 Aly 26 '15

Water service tests. P. M. La Bach. Ry Age 59:536 S 17 '15

Pumping engines

Defective valves cause slippage in pumping engines. A. A. Wood. Il Eng Rec 71:598 Aly 8 '15

Evolution of the waterworks pumping engine. W. B. Bryan. Engineer 118:579-1 D 11 '14

Famous Cornish pump. diags Power 42:124-5 J1 27 '15

Pumping engines, Madras waterworks. Il Engineer 119:188 F 19 '15

Service of a fuel oil engine in a railway pumping station. Il Ry Age 58:1444-5 Je 18 '15

Testing

Utility of pump slip tests in maintaining efficiency of pumping engines. H. D. Havill. Eng & Contr 44:293 O 13 '15

Pumping machinery. See Pumping engines; Pumps

Pumping machinery, Electric

Automatic control of pumps to boost city water pressure. Il Elec W 66:643 S 18 '15

Automatic electric control of pumps. G. J. Kirchgasser. Il diags Power 41:311-14 Je 13 '15

Cost of electric pumping for irrigation. Il map Elec W 66:68-71 J1 10 '15; Same abr. Eng Rec 72:257-8 Ag 28 '15

Electric motors supplant steam for water pumping at Wellesley, Mass. Elec R & W Elec'n 67:147-8 J1 24 '15

Electric pump wagon. R. E. Plimpton. Il Munic Eng 49:28-9 J1 '15

Electrically driven, non-vibrating pumps. Il Elec W 66:488 Ag 28 '15

Electrically driven water-works plant. E. M. Ivens. Il plan Power 42:198-200 Ag 10 '15

Electrically operated pumping outfit. Il Elec R & W Elec'n 67:684 O 9 '15; Elec W 66:827 O 9 '15

Electricity for irrigation pumping. Il Elec R & W Elec'n 66:1023-8 Je 5 '15

Electricity for municipal pumping. Il Elec R & W Elec'n 67:653-8 O 9 '15

Electricity replaces steam in drainage pumping. Il Elec W 66:87 J1 10 '15

Irrigating the land of little rain. S. M. Kennedy. Il diags Elec W 65:1471-4 Je 5 '15

Irrigation in the Wenatchee valley. A. Gunn. Il Elec W 65:1560-3 Je 12 '15

Minneapolis dredging pump operates electrically. Il Eng Rec 72:138-7 J1 31 '15

Motor-driven deep-well pumping head. Il Elec R & W Elec'n 67:248 Ag 7 '15

Motor-driven house pump. Il Elec W 66:1220 N 27 '15

New vertical electric condensation return pump. Il diags Heat & Ven 12:53-4 Ag '15

Pumping machinery, Electric—Continued

Pumping and loading sand; with tables of costs. A. E. Smith. *Il Elec W* 66:467-8 Ag 28 '15
 Saving \$1,500 a month by using electric pumps. E. H. Yensel. *Il diag Elec W* 66:400-1 Ag 21 '15

Pumping stations

Baltimore sewage-pumping plant. W. O. Rogers. *Il Power* 41:76-8 Ja 19 '15
 Boston's new sewage pumping station. W. B. Conant. *Il Munic J* 39:775-6 N 18 '15
 California pumping station of the W. Gloucester water co. *Il diags Engineer* 119:152-4 F 13 '15
 Comparative steam and electric power layouts for a drainage pumping plant. plans Eng & Contr 42:412-14 O 28 '14
 Concrete rings, superimposed, sunk to form San Antonio pump pit. W. W. Hay. *Il diag Eng Rec* 71:741-2 Je 12 '15
 Constructing Passaic valley pumping station. *Il plan Munic J* 38:341-4 Mr 18 '15
 Constructing pumping station in unbraced cofferdam formed by outside walls. *Il plans Eng Rec* 71:292-4 Mr 6 '15
 Dominguez central-station irrigation system. C. B. Loomis. plan map Eng N 74:540-1 S 16 '15
 Drainage pumping plant with variable-speed drive. *Il diags Eng N* 74:531-3 S 23 '15
 Electric sewage-pumping station, Audubon, N. J. *Il diag plan Eng N* 73:73 Ja 14 '15
 Electricity in waterworks plants. L. E. Darling. Elec R & W Elec'n 66:869-71 My 8 '15
 Fairview sewage-pumping station. T. Willson. *Il plan Power* 41:286-7 Mr 2 '15
 Indianapolis pumping station designed for continuous service. Eng Rec 71:308 F 13 '15
 Irrigation by pumping at Del Rio, Texas. A. Potter. *Il diags plan Eng & Contr* 43:66-71 Ja 27 '15
 Largest electric drainage pumping plant. A. M. Shaw. Eng N 74:804-5 O 21 '15
 Low-lift centrifugal pumps at Akron will operate under unusually varied conditions. F. A. Barbour. *Il Eng Rec* 71:580-1 My 8 '15
 Method employed in connecting suction tunnel to pumping station wet well without draining the latter. H. W. Clausen. Eng & Contr 42:421-5 N 4 '14
 Motor-operated pumping installation to handle flood water in Boston. *Il Elec W* 66:1206-7 N 27 '15
 Municipal pumping stations of Detroit. T. Willson. *Il Power* 41:150-8 F 2 '15
 Ornamental pumping station. *Il Munic J* 39:190 Ag 5 '15
 Performance of Diesel engine pumping equipment of the Appleton, Wis., water works. *Il plan Eng & Contr* 44:244-6 S 29 '15
 Progress in Kansas in pumping for irrigation. H. B. Walker. Eng & Contr 43:233-4 Mr 17 '15
 Pumping California crude oil. C. P. Bowie. *Il Eng N* 74:1068-71 D 2 '15
 Sewage pumping plants; brief descriptions of plants operating in seventy-five cities. Munic J 38:358-62 Mr 18 '15
 Sewage pumping, screening and sterilizing station at Daytona, Fla.; specifications. plans Eng & Contr 43:525-7 D 2 '14
 Turbine-driven water-works plant, Charlotte-town. P. E. I. C. O. Thomas. *Il Power* 42:504-5 O 12 '15
 Types and properties of deep well pumps. G. W. Bissell. Eng & Contr 44:33-4 Jl 14 '15
 Variable-speed pumping plant for a drainage district. diags Eng N 74:918-19 N 11 '15
 Whitton pumping station of the Ipswich corporation waterworks; abstract. C. W. S. Oldham. Engineer 118:588 D 18 '14
See also Pumping—Cost; Pumps; Water supply engineering; Waterworks

Pumps

Automatic control of step-bearing oil pumps. *Il diag Elec W* 65:297 Ja 30 '15
 Automatic pumping equipment. F. J. Vevla. plan Elec R & W Elec'n 66:1060 Je 5 '15
 Bit of pump history. Colliery 35:389 F '15
 Capacity and power of hydraulic pumps. R. A. Lachmann. Power 41:69 Ja 19 '15

Choice of pumps for city water works. J. E. Craig. Eng & Contr 43:171 F 24 '15
 Control for boiler-feed pumps and piping connections. plan Elec W 66:918-19 O 28 '15
 Dayton power pump. *Il Power* 41:165-6 F 2 '15
 Deane high-pressure pump. *Il Power* 42:501-2 O 12 '15
 Deep well pumps. *Il Metal Work* 84:223 Ag 13 '15
 Duplex pumps. A. L. Haas. Int Marine Eng 20:363-4 Ag '15
 Efficiencies of mine pumps. P. E. Barbour. Eng & Min J 99:1031-2 Je 12 '15
 Electrically operated house pump. *Il Elec R & W Elec'n* 67:635 O 2 '15
 Equipment and methods in largest refrigeration system. C. H. Bromley. *Il diags Power* 40:914-16 D 29 '14
 Influence of disk friction on turbine pump design. F. zur Nedden. diags Am Soc M E J 37:538-44 S '15; Abstract. Int Marine Eng 20:866 Ag '15; Discussion. Am Soc M E J 37:545-6 S '15
 Low-lift screw pumps installed at Terrebonne, La. *Il diag Eng N* 74:813 Ag 12 '15
 Luitwieler double-acting triplex pump. *Il Power* 41:750 Je 1 '15
 Men and machinery of the Comstock—the combination shaft. G. W. Dickie. *Il Eng & Min J* 98:990-4 D 5 '14
 Mine pumping; comparison of steam and electric pumps. C. Legrand. Am Inst Min E Bul 105:1929-35 S '15
 Multistage centrifugal and Cornish pumps in Chapin mine. L. E. Ives. *Il diag Eng & Min J* 99:867-8 My 15 '15
 New diaphragm pump. *Il Met & Chem Eng* 13:455-6 Jl '15
 Notes on elevator pumps. T. J. Rogers. diags Power 41:741-2 Ja 1 '15
 Pump regulator. A. H. Bullard. diag Power 41:754 Je 1 '15
 Pumping for irrigation studies. Eng & Contr 44:96 Ag 4 '15
 Pumps for city water works. J. E. Craig. Munic Eng 49:69-70 Ag '15
 Reciprocating-pump slippage. M. K. Baer. Power 40:927-8 D 29 '14
 Saving in the pump room. W. E. Dixon. diag Power 41:171-2 F 2 '15
 Screw pumps for the drainage works at New Orleans. *Il plans Engineer* 119:460-1 My 7 '15
 Selecting a pump for general service. C. L. Hubbard. diags Power 41:198-9 F 9 '15; Discussion. 41:345-6, 519-20 Mr 9, Ap 13 '15
 Selection of deep well pumping machinery. D. A. Graham. Eng & Contr 43:104-6 F 3 '15; Same. Engineer 130:164-5 Ag 13 '15; Abstract. Eng N 73:184 Ja 28 '15; Abstract. Eng Rec 71:204-5 F 13 '15
 Slippage of reciprocating pumps. T. B. Hyde. Power 41:468-9 Ap 6 '15
 Suction lift for pumps. D. Fiegeleman. Power 42:150-1 Ag 3 '15
 To calculate a pump's duty. Power 42:81 Jl 20 '15
 Two ways of piping steam pumps. W. H. Wakeman. diags Dom Eng 72:138 Jl 31 '15
 Viking rotary pump. *Il diag Munic J* 39:597-8 O 14 '15
 Water level in air chambers. G. A. Weindel. diags Power 42:623 N 2 '15
 Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. diags Dom Eng 72:254-6 Ag 28 '15
See also Air lifts; Air pumps; Pumping stations; Tire pumps

Cost of operation

Economical duty of pumps. F. H. Carter. Eng Rec 70:618-20 D 5 '14

Repair

Accident to pump plunger and how repaired. G. H. Wallace. diags Power 41:691 My 18 '15

Testing

See Pumps, Centrifugal—Testing

Pumps, Centrifugal

Blast-furnace plant auxiliaries and general arrangement. J. E. Johnson, jr. diags Met & Chem Eng 13:373-8 Je '15

Pumps, Centrifugal—Continued

- Boiler-feed pump discussion. B. N. Everett. Power 42:424 S 21 '15
- Centrifugal boiler-feed pumps. A. L. Covill; W. L. Durand. Power 42:276 Ag 24 '15
- Centrifugal boiler-feed pumps. C. C. Richardson. Power 42:122 J1 27 '15
- Centrifugal boiler feed pumps. C. O. Sandstrom. Power 42:275-8 Ag 24 '15
- Centrifugal boiler-feed pumps. J. E. Kamps. Power 42:693-4 N 16 '15
- Centrifugal boiler-feed pumps. T. D. Hayes. Power 42:347 S 7 '15
- Centrifugal crude-oil pump. A. B. Morrison, Jr. Power 41:454-5 Mr 30 '15
- Centrifugal dredging pump applied to production of sand and gravel. II Concrete Cem 7: 191-2 N '15
- Centrifugal mine-pumps on the Rand; with cost data. El. G. Izod and A. P. Rouillard. diags Eng & Min J 99:1115-16 Je 26 '15
- Centrifugal pump became air bound. F. Mc-Morrow. Power 41:854 Je 22 '15
- Centrifugal pump for thick liquors. II Met & Chem Eng 13:512 Ag '15
- Centrifugal pump from standpoint of central station. T. D. Rose. II Elec R & W Elec'n 67:7-12 J1 3 '15
- Centrifugal pumps for boiler-feed service. E. S. Adams. Power 40:984-5 D 29 '14
- Centrifugal pumps for fire engine service; abstract. A. Schacht. Am Soc M E J 37:408-9 J1 '15
- Characteristic curves of centrifugal pumps; with discussion. F. W. Greve, Jr. W Soc E J 18:776-87 O '14; Abstract. Am Soc M E J 37: 59-60 Ja '15
- Comparing triple-expansion and centrifugal pumps. G. M. Peek; G. H. Gibson. Eng N 74:1044-5 N 25 '15
- Concrete patches repair centrifugal dredging pump. W. L. Grace. II Eng Rec 72:147 J1 31 '15
- Condition gage for centrifugal pumps. G. M. Peek. diag Eng N 72:1268 D 24 '14
- Direct-driven and geared centrifugal pumps, Ross pumping stations, Pittsburgh. II Eng N 73:134-5 Ja 21 '15
- Dredge pump handles ashes. O. D. Havard. diag Power 41:580 Ap 27 '15
- Effect of temperature on capacity of centrifugal pumps. J. Howard. Power 41:406 Mr 23 '15
- Effect of velocity head on centrifugal pumps. S. Wilcox. Power 42:487 O 5 '15
- Hill-Tripp centrifugal pump. II diags Power 41:634-6 My 11 '15
- Kingsford double-flow pump. II Power 41:85-6 Ja 19 '15
- Largest centrifugal pump. II Sci Am S 79:27 Ja 16 '15
- Low-lift centrifugal pumps at Akron will operate under unusually varied conditions. F. A. Barbour. II Eng Rec 71:580-1 My 8 '15
- Multistage centrifugal pumps. II diag Colliery 35:410-14 Mr '15
- Priming a centrifugal pump. El. M. Ivens. II diags Power 41:380-2 Je 29 '15
- Priming a centrifugal pump. J. E. Poche. diags Power 41:550 Ap 20 '15
- Priming a centrifugal pump. J. F. Jones. diags Power 41:294 Mr 2 '15
- Priming centrifugal pumps. C. A. Bunting. diag Power 42:275 Ag 24 '15
- Southwark-Rateau centrifugal pumps. II diag Colliery 35:495-7 Ap '15
- Steam-turbine-driven centrifugal pumps of the Toronto water works. II Eng & Contr 43:543-9 Je 23 '15
- Various sizes, types, services and drives of centrifugal pumps. II Munic J 39:857-8 D 2 '15

Cleaning

- Cleaning a centrifugal pump. Colliery 35:260-1 D '14

Testing

- High duty obtained from small booster pumps. Eng Rec 72:79-80 J1 17 '15
- How low fixed charges favor centrifugal pumps. G. H. Gibson. II plan Eng N 74:886-8 N 4 '15
- New graving dock at South Shields. II diag plan Engineer 120:154-6, 158 Ag 13 '15

- Salt solution method used for testing centrifugal pump. E. D. Moses. II Eng Rec 72:137-8 J1 31 '15
- Single-stage centrifugal pumps. E. B. Wilson. II diags Colliery 35:365-70 F '15
- Test of booster pumps. II Power 41:338 Mr 9 '15
- Test of centrifugal motor-driven pumps. S. S. Rumsey and W. F. Schwedes. diags plans Am Inst Min E Bul 94:2613-35 O '14; Abstract. Am Soc M E J 36:0214 N '14; Discussion. Am Inst Min E Bul 100:902-9 Ap '15
- Testing small centrifugal pumps. A. A. Wood. diag Power 41:616 My 4 '15
- Testing small centrifugal pumps. M. R. Blish. diags Power 41:370-3 Mr 16 '15
- Testing small centrifugal pumps. R. L. Daugherty. Power 41:551-2 Ap 20 '15
- Water-supply booster pumps; Roseland station, Chicago. II diag Eng N 73:744-5 Ap 15 '15

Pumps, Gas

- First large American-built Humphrey pump. C. C. Trump. II diags Power 40:767-70 D 1 '14; Same. Eng N 73:151-8 Ja 28 '15; Abstract. Ind Eng 15:26-7 Ja '15
- Humphrey pump: recent developments. C. C. Trump. II diags Sibley J 80:55-9 N '15
- Irrigation by pumping at Del Rio, Texas. A. Potter. II diags plan Eng & Contr 43:66-71 Ja 27 '15; Same abr. Eng Rec 71:596-8 My 8 '15

Pumps, Tire. See Tire pumps**Punching machinery**

- Hydraulic punch for track spike slots. II Elec Ry J 46:195 J1 31 '15
- Large multiple punching machine. II Iron Age 96:291 Ag 5 '15
- Multiple hand punch. J. Leafstrom. diag Mach 21:747 Mr '15
- Safety feed increases production of punch press. II Iron Age 95:1333-4 Je 17 '15
- Spacing table in the structural shop: equipment in Fort Pitt bridge works. G. P. Thomas. II Iron Age 95:139-41 Ja 14 '15
- Sub-press for blanking mica insulators. W. C. Betz. diags Mach 21:407-8 Ja '15
- Yoke riveting and punching machine. II Iron Age 95:1398 Je 24 '15

Punctuation

- Parenthetical clauses. W. P. Root. Inland Ptr 55:477-8 J1 '15
- Punctuating quotations. F. H. Teall. Inland Ptr 56:381 D '15
- Varying styles and proofreading. F. H. Teall. Inland Ptr 55:614-16, 756-9; 56:58-9, 202-3 Ag-N '15

See also Compound words**Purchasing**

- Broad field of the purchasing agent. El. C. Church. Eng M 49:420-1 Je '15
- Buying suggestions made by successful men. Metal Work 83:423-6 Mr 19 '15
- Fuel-supply contracts and the progress of more scientific methods of purchase and control in America and Europe. J. B. C. Kershaw. Met & Chem Eng 13:393-6 Je '15
- Interesting and important law about buying goods. El. J. Buckley. Elec R & W Elec'n 67:335 Ag 21 '15
- Judicious buying of plumbing materials. Metal Work 83:59-60 Ja 1 '15
- Philosophy of correct purchasing. El. C. Church. Iron Age 95:1008-9 My 6 '15
- Purchasing agent and high-class product. W. H. Morse. Eng M 49:333-5 Je '15
- Purchasing and distributing supplies in Cleveland. A. R. Callow. II Munic J 39:391-4 S 9 '15
- Purchasing for scattered factories. H. L. Evans. Iron Age 95:383-8 F 4 '15
- Purchasing supplies for the Panama canal. F. C. Boggs. Iron Age 96:1180-2, 1226-7 N 18-25 '15
- Records for the purchasing department. H. A. Russell. Iron Age 96:308-9 Ag 5 '15
- Systematic purchase and care of mill supplies. El. C. Church. Textile World 49:207-9 My '15
- See also Inspection

Pycnometer

New form of pycnometer for liquids. P. B. Davis and L. S. Pratt. *diag Am Chem Soc J* 37:1199-1200 My '15

Pyrhellometer

Solar radiation. C. G. Abbot, F. E. Fowle and L. B. Aldrich. *Sci Am S* 80:258-9 O 23 '15

Pyridine

Salts of acridine, pyridine and quinoline. L. H. Cone. *Am Chem Soc J* 36:2101-10 O '14

Pyrimidines

Researches on pyrimidines: alkylation of 2-mercaptopyrimidines. T. B. Johnson and H. W. Haggard. *Am Chem Soc J* 37:177-83 Ja '15

Researches on pyrimidines: new methods of synthesizing 2-ketopyrimidines and their sulfur analogs. T. B. Johnson and A. W. Joyce. *Am Chem Soc J* 37:2151-54 S '15

Researches on pyrimidines: pyrimidine aldehydes and their biochemical interest. T. B. Johnson and L. H. Cretcher, jr. *Am Chem Soc J* 37:2144-51 S '15

Researches on pyrimidines: synthesis of 4-phenylcytosine. T. B. Johnson and E. H. Hemingway. *Am Chem Soc J* 37:378-83 F '15

Researches on pyrimidines: synthesis of the pyrimidine nucleoside, 4-hydroxymethyluracil. T. B. Johnson and L. H. Chernoff. *Am Chem Soc J* 36:1742-7 Ag '14

Researches on pyrimidines: the synthesis of 4-hexyluracil and its relationship to uracil-glucoside. T. B. Johnson. *Am Chem Soc J* 36:1891-9 S '14

Pyrite

Cave deposit. G. J. Young. *diag Econ Geol* 10:186-90 F-Mr '15

Grong copper and pyrites mines of Norway. A. D. Udhany. *il map Eng & Min J* 99:889-92 My 23 '15

Pyrite in coal measures. Colliery 35:251 D '14

Pyrite smelting. E. D. Peters. *Eng & Min J* 98:1184-5 D 26 '14

Pyrites in 1914. *Eng & Min J* 99:148 Ja 16 '15

Pyritic smelting at Mount Lyell. R. Sticht. *Met & Chem Eng* 13:116-18 F '15

Pyritic smelting; discussion. *Am Inst Min E Bul* 100:739-61 Ap '15

Results of some co-operative work on determination of sulfur in pyrites. H. C. Moore. *J Ind & Eng Chem* 7:634-6 JI '15

Rotary kilns for desulphurization and agglomeration. S. B. Doak. *Am Inst Min E Bul* 105:2061-6 S '15; Same. *Iron Age* 96:574-6 S 9 '15

Pyrogallol

Reagents for use in gas analysis; alkaline pyrogallol. R. P. Anderson. *diag J Ind & Eng Chem* 7:587-96 JI '15

Pyroligneous acid. See Acetic acid**Pyrometers and pyrometry**

Base metal pyrometer couples. *Mach* 21:727 My '15

Characteristics of radiation pyrometers. G. K. Burgess and P. D. Foote. *il diag U S Bur Stand Bul* 12:90-178 O 28 '15; Abstract. *J Fr Inst* 179:493-5 Ap '15

Finding the transformation points in steel. E. F. Lake. *il Mach* 21:711-14 My '15

High-resistance pyrometers. *Power* 42:56 JI 13 '15

Machine that measures the heat of stars. *il Sci Am* 113:49 JI 10 '15

Measurement of the temperature of molten metals. C. R. Darling. *Engineer* 118:611 D 25 '14

Measuring high temperatures by melting of metallic salts. *il Elec W* 65:124-5 Ja 9 '15; *Elec Ry J* 45:106 Ja 9 '15; *Foundry* 43:39 Ja '15; *Heat & Ven* 12:54 Ja '15; *Horseless Age* 35:40 Ja 6 '15; *Iron Age* 94:1491 D 31 '14; *Ry Age (Mech ed)* 89:46-7 Ja '15; *Iron Tr R* 56:430 F 25 '15

Multiple-type recording instrument for pyrometers. *il Met & Chem Eng* 13:643 S 15 '15

New high-resistance pyrometer instruments. *il Elec R & W Elec'n* 66:1068-9 Je 5 '15

Pyrometers for shop use. J. M. Johnson. *diag Mach* 21:550-3 Mr '15; Same. *Sci Am S* 80:156-8 S 4 '15

Radiation pyrometers; sources of error in the Fery and Thwing. G. K. Burgess and P. D. Foote. *Iron Age* 96:196-7 JI 22 '15

Recent progress in pyrometry. C. R. Darling. *Eng & Min J* 100:519 S 25 '15

Sentinel pyrometers and paste and their uses. *il Met & Chem Eng* 13:193-3 Mr '15

Tapalog, a new multiple record pyrometer recorder. *il Met & Chem Eng* 13:260-1 Ap '15; *Iron Age* 95:609 Mr 18 '15; *Elec W* 65:871 Ap 3 '15; *Power* 41:541 Ap 20 '15

Testing and repairing pyrometers. J. Lucas. *il Power* 41:712-14 My 25 '15

See also Micropyrometers

Pyrophoric alloys

Court of appeals decision in the pyrophoric alloy suit. *Met & Chem Eng* 13:145-6 Mr '15

Pyrophyllite

Alunite and pyrophyllite in triassic and jurassic volcanics at Kyuquot Sound, British Columbia. C. H. Clapp. *diag Econ Geol* 10:70-88 Ja '15

Q

Quantity surveying

Better estimating and contract methods as advocated by the American Institute of quantity engineers. G. A. Wright. *Assn Eng Soc J* 54:168-9 Ap '15

Comment on cost of quantity surveys of buildings and a proposed survey guarantee. W. K. Palmer. *Eng & Contr* 43:518-19 Je 9 '15

Estimating contracts by quantity survey. G. A. Wright. *Metal Work* 83:502-4 Ap 2 '15

Estimating curves for standard bridges of the Illinois highway department. G. F. Burch. *il diag Eng & Contr* 43:123-6 F 10 '15; Same cond. *Eng Rec* 72:171-2 Ag 7 '15

How quantity competition can be eliminated. H. M. Saumenig. *Eng Rec* 72:566 N 6 '15

Is the quantity system necessary? J. T. Tubby, jr. *Am Inst Arch J* 3:177-9 Ap '15

Qualifications of a quantity surveyor. *Bldg Age* 37:50-2 Mr '15

Quantity system. G. A. Wright. *Am Inst Arch J* 3:38-9 Ja '15

Quantity system of estimating. A. W. Joslin. *Bldg Age* 37:49-52 S '15

Quantity system of estimating. D. S. Ballantine. *Bldg Age* 37:41 JI '15

Quantity system of estimating; an American method compared with the London system. A. G. Duke. *Bldg Age* 37:35-6 My '15

Report of committee of the Engineers' club of St. Louis. *Assn Eng Soc J* 54:8-11 Ja '15

Laws and regulations

St. Louis law on quantity surveying. *Eng N* 73:282-3 F 11 '15

St. Louis ordinance governing quantity surveyors. *Eng & Contr* 43:187 Mr 3 '15

Quarries and quarrying

Cart for rock quarries. G. B. Wilson. *il Eng & Min J* 99:365 F 20 '15

Electrical equipment of the Vermont marble company. J. Liston. *il Gen Elec R* 18:1015-25 N '15

Electricity in marble quarrying. *il Elec R & W Elec'n* 67:963-6 N 27 '15

Electricity in stone quarries and asphalt plants. *il Elec R & W Elec'n* 67:315-18 Ag 21 '15

Modern rock-crushing plant. P. K. Yates. *il plans Eng N* 73:582-5 Mr 25 '15

Primer on explosives for metal miners and quarrymen. C. E. Munroe and C. Hall. *diag U S Bur Mines Bul* 80:63-71 '15

Quarrying slate for structural purposes. *il Metal Work* 84:445-6 O 1 '15

Safety in stone quarrying. O. Bowles. *il U S Bur Mines Tech Pa* 111:1-46 '15

See also Blasting; Building stones

Quartz

Absorption, reflection, and dispersion constants of quartz. W. W. Coblentz. *U S Bur Stand Bul* 11:471-81 My 10 '15

Quartz veins in lamprophyre intrusions. J. F. McLennan. *Eng & Min J* 99:11-13 Ja 2 '15

Quartz lamps. See Electric lamps, Mercury vapor
Quebec (city)

Bridges

- Building the new Quebec bridge: the world's largest truss span. *Il Iron Tr R* 56:562-3 Mr 18 '15
- Design of the main shoes of the new Quebec bridge. *Il diags Engineer* 118:527-8 D 4 '14
- Erection of new Quebec bridge. H. P. Borden. *Il Eng Rec* 71:80-1 Ja 16 '15
- Erection progress on the Quebec bridge. *Il Eng & Contr* 44:170-1 S 1 '15
- Erection traveler, new Quebec bridge. H. P. Borden. *Il plans Eng N* 73:417-22 Mr 4 '15
- New methods evolved in building world's largest bridge; Quebec erection. *Il Eng Rec* 72:96-100 J1 24 '15
- Progress of erection of the new Quebec bridge. *Il plate (supp) Engineer* 120:416-17 O 29 '15
- Progress of the new Quebec bridge. *Il plan Engineer* 119:101-3 Ja 29 '15
- Provision for traction stresses in Quebec bridge. C. A. Norton. *diags Eng Rec* 71:492-3 Ap 17 '15
- Quebec-bridge camp and yards. *Il plan Eng N* 74:748-9 O 14 '15
- Quebec bridge work in 1915. *Il Eng N* 74:473-5 S 2 '15
- Work on the new Quebec bridge during the first erection season. H. P. Borden. *Il Eng N* 73:1-4 Ja 7 '15

Quicksilver. See Mercury

Quincy, Illinois

Water supply

- New water filtration plant. W. R. Gelston. *Il diag Am Water Works Assn J* 2:446-52 Je '15; Same. *Munic Eng* 48:297-8 My '15; Discussion. *Am Water Works Assn J* 2:452-4 Je '15

Quinine

Quinine in the treatment of gaseous gangrene. K. Taylor. *Sci Am S* 80:242-3 O 16 '15

Quinoline

Salts of acridine, pyridine and quinoline. L. H. Cone. *Am Chem Soc J* 36:2101-10 O '14

Quirigua, Guatemala, C. A.

Antiquities

Use of glue molds under serious difficulties. N. M. Judd. *Il Concrete Cem* 6:151-4 Mr '15; Same. *Sci Am S* 80:56-7 J1 24 '15

R

Radiation

- Characteristics of radiation pyrometers. G. K. Burgess and P. D. Foote. *Il diags U S Bur Stand Bul* 13:90-178 O 28 '15; Abstract. *J Fr Inst* 179:493-5 Ap '15
- Controlling infra-red emission. W. W. Coblenz. *Elec W* 66:1155-6 N 20 '15
- Difficulty of measuring heat, with special reference to radiated and convected heat. A. H. Barker and F. C. S. Brendal. *Heat & Ven* 12:21-4 My; 33-4 Je '15
- Electromagnetic radiation from the viewpoint of the electron theory. J. P. Minton. *diags Gen Elec R* 18:387-97 My '15
- Emissivity of metals and oxides. G. K. Burgess and P. D. Foote. *diags U S Bur Stand Bul* 11:41-64 N 16 '14
- Emissivity of metals and oxides; iron oxide. G. K. Burgess and P. D. Foote. *U S Bur Stand Bul* 12:83-9 O 28 '15
- Emissivity of metals and oxides; measurements with the micro-pyrometer. G. K. Burgess and R. G. Waltenberg. *U S Bur Stand Bul* 11:591-605 My 37 '15
- Emissivity of metals and oxides; the total emissivity of platinum and the relation between total emissivity and resistivity. P. D. Foote. *U S Bur Stand Bul* 11:607-12 My 27 '15
- Heat emitting capacity of radiation. C. D. Allan. *Heat & Ven* 12:32-4 Ag '15
- Measurements on standards of radiation in absolute value. W. W. Coblenz. *U S Bur Stand Bul* 11:87-96 N 15 '14

New radiation computing disk. *Il Heat & Ven* 12:54-5 Ag '15

Radiation pyrometers; sources of error in the Fery and Thwing. G. K. Burgess and P. D. Foote. *Iron Age* 96:196-7 J1 22 '15

Visibility of radiation. P. G. Nutting. *Ilum Eng Soc* 9:833-42 no 7 '14

Visibility of radiation in the red end of the visible spectrum; abstract. E. P. Hyde and W. E. Forsythe. *Elec W* 66:464 Ag 28 '15

See also Cathode rays; Heat radiation; Heating—Tables, calculations, etc.; Light; Radiators; Radioactivity; Radiometer; Ultra-violet rays; X rays

Radiation, Solar. See Solar radiation

Radiators

- Coefficient of heat transmission in a pressed steel radiator. J. R. Allen. *plans Am Soc Heat & V E* 20:86-91 '14; Same. *Heat & Ven* 11:30-3 Mr '14; Same. *Metal Work* 81:207-9 Ja 30 '14; Same. *Dom Eng* 66:186-7 F 7 '14; Same cond. *Ind Eng* 14:171 Ap '14; Discussion. *Am Soc Heat & V E* 20:91-3 '14
- Effect of radiator decoration. T. Tait. *Dom Eng* 72:341-3 S 18 '15
- Electro-thermostatic control of radiators. *Sci Am* 112:364-4 Ap 17 '15
- Gas radiator. *Il Metal Work* 84:257 Ag 20 '15
- Gas-steam radiator. *Il Heat & Ven* 12:51-2 S '15
- Gas-steam radiators. *Il Sci Am* 113:255 S 18 '15
- Heat emission from radiators. E. D. Bottsford. *Heat & Ven* 12:49 S '15
- Heat from radiators under different temperatures. C. A. Fuller. *Heat & Ven* 12:32-5 Mr '15
- How radiator cores are made efficiently. E. C. Kreutzberg. *Il Foundry* 42:471-2 D '14
- Position of radiators in rooms. W. F. Verner. *Metal Work* 84:15 J1 2 '15
- Radiator traps and test data. L. M. Arkley. *diag Heat & Ven* 12:37-9 S '15
- Rathbone electric hot-water radiator. *Il Elec R & V Elec'n* 67:588-9 S 25 '15
- Standard methods of proportioning direct radiation and standard sizes of mains. J. A. Donnelly. *Dom Eng* 73:2-4 O 2 '15
- Tests on the heat transmission of direct radiators at low differences in temperatures. J. A. Donnelly. *diag Heat & Ven* 11:36-7 S '14; Same. *Am Soc Heat & V E* 20:405-7 '14; Same. *Dom Eng* 68:65 J1 18 '14; Discussion. *Heat & Ven* 11:38-9 S '14; Discussion. *Am Soc Heat & V E* 20:408-11 '14

See also Automobiles—Radiators

Radiators, Electric. See Electric radiators

Radicals (chemistry)

Triphenylmethyl; preparation of *p*-hydroxy-triphenylcarbinol and attempts to isolate the corresponding triarylmethyl. M. Gomberg and R. L. Jickling. *Am Chem Soc J* 37:2575-91 N '15

Radioactive substances

Birth-time of the world: methods of determining its age. J. Joly. *Sci Am S* 79:78-9 Ja 30 '15

Extraction and separation of the radioactive constituents of carnotite. H. M. Plum. *Am Chem Soc J* 37:1797-1818 Ag '15

Periodic law. S. Dushman. *Gen Elec R* 18:617-21 J1 '15

Radio-active fertilizers. *Sci Am S* 79:53 Ja 23 '15

Radium as a fertilizer. *Sci Am* 112:396 My 1 '15

See also Carnotite; Mesothorium; Radioactivity; Radium; Thorium

Radioactivity

Influence of radio-active earth on plant growth. H. E. Rusby. *Il Sci Am S* 79:216-18, 228-30 Ap 3-10 '15

Radio-active ores and plant life. H. Bastin. *Il Sci Am* 112:835 Ap 10 '15

Radioactivity; advances in a theory that has enabled us to study natural transmutation. *Sci Am S* 80:50-1 J1 24 '15

See also Cathode rays; Electrons; Helium; Radiography; Radiotherapy; Radium; X rays

Radiography

- Application of the Coolidge tube to metalurgical research. W. P. Davey. *Il Gen Elec R* 18:134-6 F '15; Same. *Iron Age* 95:500-1 Mr 4 '15; Same. *Sci Am S* 79:331 My 22 '15; Same, with description of Coolidge tube. *Engineer* 119:350-1 Ap 9 '15
- Finding blowholes with the X-rays. C. H. Tomamy. *Il diags Foundry* 43:455-6 N '15; Same cond. *Iron Age* 96:1054-5 N 4 '15
- Model X-ray dark-room. W. P. Davey. plans *Gen Elec R* 18:1107-10 D '15
- Radiography of metals. W. P. Davey. *Il Am Inst Min E Bul* 104:1515-25 Ag '15; Same. *Gen Elec R* 18:795-800 Ag '15; Same cond. *Iron Age* 96:522-4 S 2 '15; Abstract. *J Fr Inst* 180:489-90 O '15
- Röntgen motion pictures; the Dessauer process. *Il Sci Am* 112:312 Ap 3 '15
- Roentgen photographs of plants. *Il Sci Am* 113:164 Ag 21 '15
- X-ray inspection of a steel casting. W. P. Davey. *Il Gen Elec R* 18:25-7 Ja '15; Same. *Iron Age* 95:186-7 Ja 21 '15; Same. *Sci Am S* 79:84 F 6 '15; Same. *Eng M* 49:106-7 Ap '15; Same. *Ry Age (Mech ed)* 89:170 Ap '15
- X-ray work in war. *Il Sci Am S* 79:120-1 F 20 '15

Radiometer

- Comparison of stellar radiometers and radiometric measurement on 110 stars. W. W. Coblentz. *Il diags U S Bur Stand Bul* 11:613-56 My 27 '15
- Difficulty of measuring heat, with special reference to radiated and convected heat. A. H. Barker and F. C. S. Brendal. *Heat & Ven* 12:24 My '15
- Three methods of measuring radiant heat from gas fires. W. R. Twigg. *Il diags Heat & Ven* 12:33-6 S '15
- Various modifications of thermopiles having a continuous absorbing surface. W. W. Coblentz. *pls U S Bur Stand Bul* 11:181-87 N 15 '14

Radiomicrometer

- Radiometric measurements of the ionization constants of indicators. E. J. Shaeffer, M. G. Paulus, and H. C. Jones. *diags Am Chem Soc J* 87:776-807 Ap '15

Radiotelegraphy. See Wireless telegraph**Radiotelephony. See Wireless telephone****Radiotherapy**

- Radium treatment of cancer. *Sci Am S* 79:409 Je 26 '15
- Radium water. *Sci Am* 111:473 D 5 '14
- Uniformity in dosage of radium emanation. W. J. Schieffelin. *Sci Am S* 79:123 F 20 '15
- See also Radium*

Radium

- Bureau of mines radium production. *Eng & Min J* 100:194-5 Jl 31 '15
- Discovery of radium in coal. *Sci Am* 112:423 My 1 '15
- Industrial uses of radium. T. T. Baker. *Eng M* 49:597 Jl '15
- Measurements of radium. *Sci Am S* 79:327 My 22 '15
- Practical methods for the determination of radium. S. C. Lind. *Il diag J Ind & Eng Chem* 7:406-10 My '15
- Progress of Bureau of mines radium work. F. K. Lane. *J Ind & Eng Chem* 7:720-1 Ag '15
- Radium situation. W. F. Bleeker. *Met & Chem Eng* 13:143-5 Mr '15; Abstract. *Eng M* 49:102-3 Ap '15; Discussion. *Met & Chem Eng* 13:202 Ap '15
- Radium: uranium ratio in carnotites. S. C. Lind and C. F. Whittemore. *diags Am Chem Soc J* 36:2066-82 O '14
- Radium-uranium ratio in carnotites. S. C. Lind and C. F. Whittemore. *Il diags U S Bur Mines Tech Pa* 88:1-28 '15
- Uniformity in dosage of radium emanation. W. J. Schieffelin. *Sci Am S* 79:123 F 20 '15
- See also Pitchblende; Radioactivity; Radiotherapy*

Radium water

- Radium water. *Sci Am* 111:473 D 5 '14

Raffinose

- Estimation of raffinose by enzymotic hydrolysis. C. S. Hudson and T. S. Harding. *Am Chem Soc J* 37:2193-8 S '15
- Preparation of raffinose. C. S. Hudson and T. S. Harding. *Am Chem Soc J* 36:2110-14 O '14

Rafts

- Pontoon bridges and rafts. *Il Sci Am S* 80:116 Ag 21 '15

Ragweed

- Bitter principle of common ragweed. B. E. Nelson and G. W. Crawford. *Am Chem Soc J* 36:2536-8 D '14

Rail bonds

- Brazed bonds on the Pacific electric and Los Angeles railways. *Elec Ry J* 46:455 S 11 '15
- Gas-weld rail bonding. J. R. Brown. *Il Elec Ry J* 46:1087-9 N 27 '15
- Improved method of applying rail bonds. L. P. Crecelius. *Il diag Elec Ry J* 46:236-8 Ag 7 '15

Rail failures. See Rails—Failures**Rail fastenings**

- New rail fastening. *diag Iron Age* 95:673 Mr 25 '15
- See also Rail bonds; Spikes (railroad)*

Rail handling

- Making records with loading machines. F. N. Loughnan. *Il Ry Age* 58:1443 Je 18 '15

Rail joints

- Automatically welded electric joints in Brooklyn. *Il Elec Ry J* 44:1810 D 12 '14
- Balou safety bolt nut for rail joints. *Il Ry Age* 59:751-2 O 22 '15
- Columbus uses new joint and track foundation. E. O. Ackerman. *Il diags Elec Ry J* 46:956-7 N 6 '15
- Emergency rail joint. *Il Ry Age* 59:532 S 17 '15
- Joint repairs on American city railways. S. Gausmann. *Elec Ry J* 45:803-4 Ap 24 '15
- New ideas in rail joints. *diags Eng N* 73:998-9 My 20 '15
- New Illinois Central standard joint. *diag Ry Age* 59:126 Jl 16 '15
- Proposed standard specifications for quenched high-carbon steel splice bars. *diag Ry Age* 59:61-2 Jl 9 '15; Same. *Iron Tr R* 57:45 Jl 1 '15
- Rail-end connections for bascule bridges. *Il diag Eng N* 73:1216-17 Je 24 '15
- Rail joints and tie spacing. *diags plan Eng N* 72:1212-13 D 17 '14
- Tests show satisfactory return-circuit conditions in Providence. R. I. *Elec Ry J* 46:825-6 O 16 '15
- Track joint conditions and creeping rails. *Ry R* 57:653-4 N 20 '15

Rail laying. See Railroads—Track**Railings**

- Falling line system of hand railing. M. Williams. *Bldg Age* 37:59-60 My; 58-60 Jl '15
- Laying out hand rail for spiral stairway. M. Williams. *diags Bldg Age* 37:55-6 F '15
- New type of gaspipe railing proves satisfactory at Cincinnati. E. K. Ruth. *diags Eng Rec* 72:198 Ag 14 '15
- Two handrailing systems contrasted. M. Williams. *diags Bldg Age* 37:55-8 D '15
- See also Guard rails (for highways)*

Railings, Concrete

- Brushed concrete balustrade along Erie canal, Rochester, N. Y. *Il Concrete Cem* 6:102-3 F '15
- Concrete handrails on Kansas City terminal work. *Il Eng Rec* 70:673 D 19 '14

Railroad accidents. See Railroads—Accidents**Railroad associations**

- American railway mechanical associations. *Ry Age* 58:353 F 26 '15

Railroad bonds. See Railroads—Securities**Railroad bridges. See Bridges, Railroad****Railroad construction. See Railroads—Construction****Railroad crossings. See Railroads—Crossings****Railroad education**

- Education for railway work. S. O. Dunn. *Ry Age* 59:807-9 N 12 '15

Railroad education—Continued

Training of young men with reference to promotion. G. M. Basford. Ry Age 59:150-3 J1 23 '15

Training steam railroad men for electric operation. C. Roberts. II diag Elec Ry J 45:970-2 My 23 '15

See also Railroads—Employees

Railroad engineering

A. R. E. A. convention. Elec Ry J 45:570-1 Mr 20 '15

A. R. E. A. 16th annual convention. Eng N 73:598-9 Mr 25 '15

A. R. E. A. 16th annual convention: committee reports. Ry R 56:386-403 Mr 20 '15

A. R. E. A.: year's work reviewed. Eng Rec 71:374-7 Mr 20 '15

Railroads from the engineering point of view. C. F. Loweth. Eng Rec 71:4-5 Ja 2 '15

See also Railroad surveying; Railroads—Construction; Railroads—Maintenance and repair; Wireless telegraph for railroads

Railroad engineers

See also Locomotive engineers

Railroad land

Railway real estate association 1st annual meeting. Ry Age 59:727-9 O 22 '15

See also Railroad land grants

Railroad land grants

United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1099-1158 '15

Railroad law

Anti-full-crew law campaign. Ry Age 58:400, 444, 633-4 Mr 6-19 '15

Argument against extension of locomotive boiler inspection service. Ry R 56:817-20 Mr 6 '15

Bill extending boiler inspection to entire locomotive. Ry R 56:127 Ja 23 '15

Bill for block signals, automatic stops, steel cars, headlights and investigations (Stevens bill). Ry R 56:125-7 Ja 23 '15

Commission on relations between railways and waterways. Ry Age 58:1037-8 My 21 '15

Commission's findings relative to the Cummins law. Ry Age 58:1049-51 My 21 '15

Conference on the Cummins amendment. Ry R 56:531 Ap 17 '15

Cost of train limit legislation. Ry Age 58:979-80 My 7 '15

Cummins amendment. Ry Age 58:826-7 Ap 16 '15

Decision on the Cummins amendment. Ry R 56:705-7 My 22 '15

Decisions of the United States Supreme court. Ry R 56:866-8 Je 26 '15

Defeat of the Missouri full crew law. O. M. Spencer. Ry Age 57:1036 D 4 '14

Extra crew laws. Ry R 56:272-3 F 27 '15

Full-crew law arguments. Ry Age 58:293-4 F 19 '15

Hand brakes outlawed. Ry Age 58:1018-19 My 14 '15

Hours of service act interpreted as to telephone communications. Ry Age 59:496-7 S 17 '15

Illinois commission prescribes minimum clearances. Ry R 56:633-6 My 8 '15; Excerpt. Ry Age 58:940 Ap 30 '15

Limiting length of trains by law. M. W. Potter. Ry Age 58:268 F 12 '15

Limiting the length of trains. Ry Age 58:392 Mr 5 '15

New railroad legislation in fifteen states. Ry Age 59:23-5 J1 2 '15

New York merchants propose amendment to the Cummins act. Ry R 57:699 N 27 '15

Possible railway securities legislation. W. L. Stoddard. Ry Age 59:946 N 19 '15

Prospects of railway legislation. W. L. Stoddard. Ry Age 59:812 O 29 '15

Railroad and the hobo. E. W. Camp. Ry R 57:396-7 S 25 '15; Same cond. Ry Age 59:460 S 10 '15

Railroads' appeal to New Jersey and Pennsylvania voters against full-crew laws. Ry Age 58:311-12 F 19 '15

Railroads must divorce lake steamship lines. map Ry R 56:682-5 My 22 '15

Railroads of Pennsylvania and New Jersey on the extra-crew laws. Ry R 56:206 F 13 '15

Railways must abandon control of boat lines on the Great Lakes; abstract of the Interstate commerce commission's decision. Ry Age 58:1046-7 My 21 '15

Regulation of railway operation. W. J. Jackson. Ry Age 58:9-10 Ja 1 '15

Report of special committee on relations of railway operation to legislation. Ry Age 59:945-6 N 19 '15

Results of the locomotive boiler inspection law. F. McManamy. Ry Age 58:621-2 Mr 19 '15; Same cond. Ry Age (Mech ed) 89:190-1 Ap '15; Same cond. Power 41:898-900 Je 29 '15

Roads allowed to retain car ferries. Ry R 56:721-3 My 29 '15

Safety and short trains. M. A. Dow. Ry Age 58:1006-8 My 14 '15

Southern Pacific's ownership of the schooner Pasadena. Ry R 56:565-6 Ap 24 '15

State legislation relating to operation. Ry Age 59:860-1 N 5 '15

Tendencies toward inefficiency in legislation. R. Walker. Ry Age 58:220-1 F 5 '15

Train crew regulations in Connecticut. Ry Age 57:1118 D 18 '14

Wisconsin berth law annulled. Ry Age 59:12 J1 2 '15

See also Grade crossing elimination; Interstate commerce; Locomotives—Inspection; Railroads—Rates; Railroads—Trespassing; Railroads and state

Bibliography

Minimum train crews and maximum length of trains legislation in the United States. Special Libraries 6:25-39 F '15

Railroad libraries

Sketches of railroad libraries. Special Libraries 6:1-13 Ja '15

Railroad maps

Platting topography to distorted scale (valuation board requirement). Eng N 73:123-4 Ja 21 '15

Railroad master blacksmiths' association, International. *See* International railroad master blacksmiths' association

Railroad rates. *See* Railroads—Rates

Railroad regulation. *See* Railroads and state

Railroad shops. *See* Railroads—Shops

Railroad signals. *See* Railroads—Signals

Railroad stations. *See* Railroads—Stations

Railroad superintendents, American association of. *See* American association of railroad superintendents

Railroad supplies industry

American locomotive builders and foreign trade. W. Fawcett. Ry Age 59:843-4 O 3 '15

Autocrat at the lunch table. B. V. Crandall. Published in the weekly issues of the Railway review beginning October 17, 1914

List of exhibitors, June, 1915, conventions and exhibition. Ry R 56:447-8 Mr 27 '15

Railroad supply exhibit, Atlantic City, June 9-16. Iron Age 95:1354-5 Je 17 '15

Railway supply man's point of view. *See* weekly numbers of the Railway review

Selling railway supplies to European countries. W. S. Hiatt. II Ry Age 59:901-4 N 12 '15

Railroad surveying

Alaskan railroad surveys. D. L. Reaburn. II Eng N 73:104-6 Ja 21 '15

Lake traverses on railroad preliminary work. J. A. Mac Donald. Eng Rec 71:48 Ja 9 '15

Methods and instruments used in making precise surface and underground surveys for the Canadian Northern Ry. tunnel, Montreal, Canada. J. L. Busfield. II diag plan Eng & Contr 42:383-6 O 21 '14

Railroad switches. *See* Railroads—Switches, frogs, etc.

Railroad tie plates

Effect of Lundie tie plates on rail wear. diag Ry Age 58:480 Mr 12 '15

Railroad supply co. wins its case against infringers of the Wolhaupter patents. II Ry R 56:60-6 Ja 9 '15

Thomas rail anchor tie plate. II Ry Age 59:752 O 22 '15

Railroad ties

- Aging old ties in track. Ry R 56:659-60 My 15 '15
- Air seasoning of ties. A. H. Noyes. Ry R 56:111 Ja 23 '15
- Behavior of treated ties in alkali soils. Elec Ry J 46:1002 N 13 '15
- Creosoting of cross ties as practiced by American railroads. A. C. Steinmayer. II Assn Eng Soc J 54:110-20 Mr 15 '15
- Distribution and care of crossties. E. F. Robinson. Ry Age 58:855 Ap 16 '15
- Justifiable expenditure for tie treatment. H. Emerson and T. T. Bower. Eng Rec 71:106-7 Ja 23 '15; Same. Eng M 48:903-5 Mr 15 '15; Summary. Ry Age 58:159-60 Ja 22 '15
- Mechanical life of ties as affected by ballast. E. Stimson. Eng Itec 71:105-6 Ja 23 '15; Same. Ry Age 58:161 Ja 23 '15; Same. Ry R 56:119-21 Ja 23 '15
- Pine ties reused by street railway after twenty-one years' service. R. C. Cram. Elec Ry J 45:295-6 F 6 '15
- Pneumatic tie peeler. II Ry Age 59:342 Ag 20 '15
- Proper supervision of tie renewals. A. W. Tabert. Ry Age 58:848 Ap 10 '15
- Renewal of ties—inspection, marking and records. Ry Age 58:1073-6 My 21 '15
- Renewing bridge ties on the Lehigh valley R. R. II Ry R 57:492-3 O 16 '15
- Renewing ties in stone and earth ballasted track. P. J. McAndrews. Ry Age 58:347-8 Ap 16 '15
- Report of A. R. E. A. committee. Ry R 58:394-6 Mr 20 '15
- Seasoning of softwood ties. A. H. Noyes. Eng Rec 71:105 Ja 23 '15
- Sill ties—treated or untreated timber, or concrete? F. J. Angler. Eng Rec 71:105 Ja 23 '15; Same. Ry Age 58:162 Ja 22 '15; Same. Ry R 56:367-8 Mr 13 '15
- Standard methods of piling and marking ties on the Pennsylvania. II Ry Age 58:334-5 F 13 '15
- Steel vs. wood ties in city track construction. J. A. Nester. II Elec Ry J 46:1089 N 27 '15
- Tie preservation on the Baltimore & Ohio R. R.; abstracts. F. J. Angler. Ry Age 59:537-8 S 17 '15; Eng & Contr 44:396-7 N 17 '15; Ry R 57:630-3 N 13 '15
- Tie timber and the unnecessary wear and tear of track. G. E. Rex. Ry R 57:362-3 S 13 '15
- Tie treating on the Boston & Worcester street railway. II Elec Ry J 45:678-9 Ap 3 '15
- Tie treatment in British India. II Ry R 56:248-9 F 20 '15
- Treated cross-ties: discussion at convention of Am. wood preservers' association. Elec Ry J 45:182 Ja 23 '15
- Treated ties on the Southern Pacific Ry. J. Q. Barlow. Eng N 74:1098 D 2 '15
- Treatment of red oak ties. Ry Age 58:159 Ja 22 '15
- See also* Railroad tie plates; Railroads—Construction; Railroads—Track; Wood preservation

Cost

- Annual cost of ties. J. G. Sullivan. Ry Age 59:352 Ag 20 '15
- Determination of annual charge for ties, poles and fence posts. W. F. Goltra. Ry Age 58:1087 My 21 '15
- Diagrams for cost of ties; Canadian Pacific railway. Eng N 74:292 Ag 12 '15
- Figuring the annual cost of ties. H. Emerson. Ry R 57:235-6 Ag 21 '15
- Figuring the annual cost of ties. J. G. Sullivan. Ry R 57:74-5, 801 JI 17, S 4 '15
- Method for finding the annual charges for ties. H. Emerson and T. T. Bower. Eng & Contr 43:155-6 F 17 '15
- Purchases in Canada during 1914. Ry Age 59:970 N 19 '15

Railroad ties, Concrete

- Reinforced-concrete ties after service. II Eng N 74:77-8 JI 8 '15

Railroad ties, Steel

- Detail cost of track work with steel twin ties. A. J. Wolfe. diags Elec Ry J 46:916-17 O 30 '15
- Developments with steel ties on the Bessemer & Lake Erie R. R. II diags Ry R 56:10-11 Ja 2 '15

- Four years of maintenance of a track crossing on steel substructure. C. A. Prentice. Elec Ry J 46:1044-5 N 20 '15
- Slick steel mine tie. diag Colliery 35:342-4 Ja 15 '15
- Slick steel mine ties. II diags Ry R 56:436-7 Mr 27 '15
- Standard steel tie. II Ry R 57:537 O 23 '15
- Steel mine ties. II Colliery 35:330-1 F '15
- Steel tie construction in electrically-warmed concrete. J. M. Bamberger. II diag Elec Ry J 45:189-90 Ja 23 '15
- Steel tie for universal service. II Elec Ry J 46:1002 N 13 '15
- Steel ties under heavy traffic. II diags Ry Age 57:1147 D 18 '14
- Steel ties under hot ashes. II Ry R 56:875 Je 26 '15

Railroad tracks. See Railroads—Track**Railroad yards. See Railroads—Yards****Railroads**

- Development of railways 1914. Engineer 119:17 Ja 1 '15
- Development of the steam railroad. II diags Sci Am 112:525-6+ Je 5 '15
- Engineering considerations in a proposed line. Elec Ry J 45:512, 799 Mr 13, Ap 24 '15
- International engineering congress meeting at San Francisco; abstract of papers and discussions relative to railroads. Ry Age 59:599-608 O 1 '15
- Railways. W. B. Parsons. Elec Ry J 46:623-4 S 26 '15
- Railways and prosperity. A. L. Mohler. Ry R 56:181-2 F 6 '15
- To Cuba by rail. H. C. Plummer. II map Sci Am S 79:40-1 Ja 16 '15
- See also* Air brakes; Brakes; Bridges, Railroad; Cable railroads; Car ferries; Cars; Electric railroads; Elevated railroads; Express companies; Freight car service; Freight cars; Hospital trains; Locomotives; Motor cars (railroad); Mountain railroads; Railroad engineering; Railroad land; Rails; Railway mail service; Street railroads; Subways; Suspended railways; Train dispatching; Trestles; Tunnels and tunneling

Accidents

- Accident bulletin no. 52. Ry Age 58:299-300 F 19 '15
- British railway accidents. H. R. Wilson. Eng N 73:436 Mr 4 '15
- Five years of safety first on the Chicago & Northwestern Ry. Ry R 57:180-1 Ag 7 '15
- French railway accidents in war-time. W. S. Hatt. Ry Age 59:1015-16 N 26 '15
- Grade crossing elimination; comparison of casualties with automobile accidents. Ry Age 59:634-5 O 8 '15
- Grtna collision. Ry Age 59:653 O 8 '15
- Grtna railway accident. Engineer 119:535 My 28 '15
- I. C. C. accident reports. Ry Age 59:695-6 O 15 '15
- Interstate commerce commission quarterly accident report. Ry R 58:699-600 My 1 '15
- Maximum rate of safe retardation for passenger cars and elevators. Eng N 72:1132-3 D 8 '14
- New safety first record for railways of the United States. Ry R 57:493 O 16 '15
- New York Central awarded Harriman safety medal. Ry Age 58:371-2 F 12 '15
- Quintinshill disaster. Engineer 120:293-4 S 24 '15
- Rail failures and train accidents. Eng N 72:1180-1 D 10 '14
- Railway accidents in the United States during January, February, and March, 1914. Ry Age 57:1081 D 11 '14
- Remarkable collision between an oil car and a steam locomotive. C. A. Byers. II Sci Am 113:280 S 25 '15
- Report on collision at Orient, Ohio. Ry Age 59:947-8 N 19 '15
- Report on the wreck at Tipton Ford, Mo., Kansas City Southern Ry. Ry R 56:694-5 D 5 '14
- Report on Thurmont, Md., collision. Ry Age 59:327 Ag 20 '15
- Train accidents: monthly summaries published in the Railway age gazette

Railroads—Accidents—Continued

28th annual report of the Interstate commerce commission. Ry R 56:161-2 Ja 30 '15
Two notable train accidents. Ry Age 58:943 Ap 30 '15
While other accidents decline trespassing accidents still increase. Ry Age 59:453 S 10 '15
Worst railway accident on record: collision at Gretna, England. Eng N 74:45-6 J 1 '15
See also Derailments; Railroads—Signals; Railroads—Safety devices and measures; Railroads—Trespassing

Accounting

Accounting for rail and ties. C: E. Parks. Ry Age 58:470 Mr 12 '15
Accounting for second hand serviceable material. C. H. Samson. Ry Age 58:1041-3 My 21 '15; Same. Ry Age (Mech ed) 59:285-6 Je '15
Accounting—material store expenses; Railway storekeepers' association committee report. Ry Age (Mech ed) 59:237 Je '15
Association of transportation and car accounting officers. Ry Age 57:1192 D 25 '14
Cost accounting in the railroad repair shop. E. Cordeau. Eng M 49:211-17 My '15
Denver reclaim agreement. Ry Age 58:370 F 26 '15
Proposed bureau for clearing car repair accounts. C. F. Straub. Ry Age 59:161-2 J 23 '15
Railroad accounting officer. H. W. Davies. Ry Age 58:1113 My 23 '15
Railroad's maintenance expenses allocated between freight and passenger service. Eng Rec 72:226-9 Ag 21 '15
Railway storekeepers' association: committee report on accounting—material store expenses. Ry Age 58:1043 My 21 '15

Advertising

Railroad advertising. E: Hungerford. Ry Age 58:1012-14 My 14 '15

Automatic stop

Automatic cab-signal and train-stop system. 11 diag Eng N 74:614-16 S 23 '15
Buell's cab signal and automatic train stop. 11 diag Ry Age 59:904-5 N 12 '15
Cab signals and automatic stops at Oroville. F. F. Bostwick. Ry Age 59:998-1000 N 26 '15
Cab signals and automatic stops on the Western Pacific. 11 diag Ry Age 59:645-50 O 8 '15
Devon and Ilford. Ry Age 58:921 Ap 30 '15
Julian train control and automatic stop. 11 diag Ry Age 58:1481-2 Ja 25 '15
New type of automatic railroad stop. 11 Sci Am 113:186-4 Ag 23 '15
Oroville signaling criticized. M. Tainer. Ry Age 59:796-8 O 29 '15
Report on Gray-Thurber train control system. Ry Age 58:304 F 19 '15

Brakes

See Air brakes; Brakes

Buildings and structures

Concrete signal towers, Delaware Lackawanna & Western R. R. 11 plans Ry R 56:615-16 My 8 '15
Concrete work on the Arizona division of the Santa Fe. 11 diag Ry Age 58:849-52 Ap 16 '15
Fuel oil stations for extreme climatic conditions. plan Ry Age 58:475-6 Mr 12 '15
Interlocking tower of stucco on hollow tile. Rock Island lines. E. G. Zorn. 11 diag Ry R 57:108-9 J 24 '15
Jersey Central service buildings at Jersey City have several novel features. 11 diag Eng Rec 72:70-1 J 17 '15
New Delaware and Hudson office building at Albany. N. Y. M. T. Reynolds. 11 Concrete Cem 6:289-93 Je '15
Paint as an aid in making the public more friendly to the railroads. E: H. Brown. Ry Age 59:969 N 19 '15
Tools for the water service and bridge and building departments. E. M. Grime. Ry Age 59:340-1 Ag 20 '15
See also Bridges, Railroad; Car houses; Coaling stations; Freight houses; Locomotive shops; Railroads—Sanitation; Railroads

—Shops; Railroads—Stations; Railroads—Storehouses; Railroads—Ticket offices; Railroads—Train sheds; Roundhouses

Cars

See Buffet cars; Cars; Dining cars; Freight cars; Motor cars (railroad); Refrigerator cars; Sleeping cars; Tank cars; Wrecking cars

Claims

Commission's findings relative to the Cummins law. Ry Age 58:1049-51 My 21 '15
Concealed damage. W. H. Streeter. Ry Age 59:856 N 5 '15
Decision on the Cummins amendment. Ry R 56:705-7 My 22 '15
Effective freight claim preventive crusade. Ry Age 58:779-81, 817-20, 891-6 Ap 9-23 '15
Growing magnitude of freight loss and damage claims. Ry R 56:131-2 Ja 23 '15
Handling of claims for perishable freight. J. F. Boylan. Ry Age 59:416-17 S 3 '15
Injuries to persons. S. S. Bishop. Elec Ry J 46:234-5 Ag 7 '15
Loss and damage committees on the Lehigh valley. Ry Age 59:861 N 5 '15
Loss and damage payments. Ry Age 59:993 N 26 '15
Loss and damage prevention, Baltimore & Ohio R. R. Ry R 55:683-4 D 5 '14
Prevention of loss and damage freight claims. G. E. Whitelam. Ry R 57:592-4 N 27 '15
Reducing stock claims. J. L. Coss. Ry Age 59:280 Ag 13 '15
See also Street railroads—Claims

Clearance

Illinois commission fixes railway clearances. plan Elec Ry J 46:223 Ag 7 '15
Illinois commission prescribes minimum clearances. Ry R 56:633-6 My 8 '15; Excerpt. Ry Age 58:140 Ap 30 '15
Track-clearance records. J. G. Wishart. Eng N 73:481-2 Mr 11 '15

Construction

Bingham and Garfield railway—a short road in Utah with some unusual features. H. C. Goodrich. 11 diag maps W Soc E J 20:512-29 Je '15
Business principles should govern railroad building. J: F. Stevens. Eng Rec 72:381-2 S 25 '15
Car-transfer ferry on the Ohio; C. B. & Q. R. R. diag plans Eng N 74:599-600 S 23 '15
Completing the Mount Royal tunnel into Montreal. 11 diag plan Ry Age 59:857-60 N 5 '15
Concrete units for crib construction. M. D. Campbell. 11 Ry Age 58:476-7 Mr 13 '15
Construction and improvements in 1914. Ry R 56:228-30, 260-2, 281-4 F 13-27 '15
Construction of new line to reach Utah coal fields. 11 map Ry Age 58:971-3 My 7 '15
Construction of the Hallett cut-off. D. L. & W. R. R. 11 diag Ry R 56:111-15, 143-9 Ja 23-30 '15
Construction of the New York connecting railroad. 11 diag map Ry Age 59:421-5 S 3 '15
Data on the design and cost of concrete piles used on railroad work. diag Eng & Contr 43:462-3 My 19 '15
Driving a five-mile tunnel through the Selkirks. 11 diag map Ry Age 57:1082-4 D 11 '14
Economies in construction work. M. E. Carroll. Ry R 56:872-5 Je 26 '15
Elkhorn extension of the Carolina, Clinchfield & Ohio Ry. 11 Ry R 56:238-42 F 20 '15
Government's Alaskan railway. 11 map Ry R 57:393-6 S 25 '15
Hell-Gate arch bridge and the New York Connecting railroad. 11 diag map. Ry R 57:453-61 O 9 '15
Important realignment problem on the Pennsylvania. 11 map Ry Age 59:456-8 S 10 '15
Lake Erie & Eastern R. R. 11 plan map Ry R 57:132-7 J 31 '15
Magnolia cut-off improvement on the Baltimore and Ohio railroad. A. W. Thompson. 11 diag maps Eng Soc W Pa 30:808-933 D '14; Abstract. Ry Age 58:934-8 Ap 30 '15
Modern methods in railway tunnel construction. C: S. Churchill. diag Ry R 57:547-55 O 30 '15

Railroads—Construction—Continued

New line from Lewistown, Mont., to Great Falls. *Il map Ry Age 58:784-9 Ap 2 '15*
 New line of the Chesapeake & Ohio Northern. *diags map Ry Age 58:1017-18 My 14 '15*
 Northern Pacific Ry. near Tacoma—new coast line. *Il diags map Eng N 73:562-5 Mr 25 '15*
 Opening of the Mont d'Or tunnel. *Il map Engineer 119:505-6, 508 My 21 '15*
 Pennsylvania improvements through Piqua, Ohio; new station and second track on revised grade, eliminating eight street grade crossings. *Il plans Ry Age 58:1003-6 My 14 '15*
 Piercing the Selkirk mountains for a five-mile tunnel. *Il map Eng Rec 70:604-6 D 5 '14; Same cond. Eng M 48:160-2 F '15*
 Plans for the Hetch-Hetchy construction railroad. *Eng N 74:925 N 11 '15*
 Point Defiance line eliminates last heavy grade between Tacoma and Portland. *D: L. Soltan. map Eng Rec 71:744-5 Je 12 '15*
 Progress on Summit cut-off of the Lackawanna. *Il diags Ry Age 58:235-9 F 5 '15*
 Railroad built around burning tunnel in three weeks. *Il Eng Rec 71:797 Je 26 '15*
 Record-breaking construction projects. *Ry Age 58:216 F 5 '15*
 St. Paul and Oregon-Washington joint terminals in Spokane. *Il plans Ry Age 58:85-8 Ja 15 '15*
 Thirty miles of Chesapeake & Ohio Northern begun. *map Eng Rec 72:300-1 S 4 '15*
 \$24,000,000 South Philadelphia railroad improvement now well under way. *Il map Eng Rec 72:327-9 S 11 '15*
 Using bulk cement on railway construction work. *M. D. Campbell. Il Ry Age 58:1441-3 Je 18 '15*

See also Bridges, Railroad; Culverts; Curves; Grade crossing elimination; Railroad engineering; Railroad ties; Railroads—Buildings and structures; Railroads—Crossings; Railroads—Curves; Railroads—Earthwork; Railroads—Electrification; Railroads—Track; Rails; Trestles; Tunnels and tunneling

Construction statistics

See Railroads—United States

Cost of operation

Calculations showing economy of constructing the Rogers Pass tunnel. *J. G. Sullivan. diags Eng & Contr 44:398-400 N 17 '15*
 Cost of stopping and starting trains. *F. W. Green. Ry R 56:655-7 My 15 '15*

Crossings

Cobb shockless railroad crossing. *Il Ry Age 58:1085-6 My 21 '15*
 Continuous rail crossing. *Il Ry Age 59:538-9 S 17 '15*
 Crossing of a narrow gage and a standard gage track. *T. C. Herbert. Il diag Ry Age 57:1150 D 13 '14*
 Experimental concrete slab grade crossing. *M. D. Campbell. Il Ry Age 58:129 J1 16 '15*
 Portable track crossings in a contractor's yard. *Il Eng N 74:317 Ag 12 '15*
 Shockless railroad crossing. *Il diags Elec Ry J 45:994-6 My 22 '15*
 Shockless railroad crossing. *El. S. Cobb. Il Munic Eng 48:362-3 Je '15*
 Three-level railway crossing at Chicago. *Il diags plans Eng N 73:708-10 Ap 15 '15*
 Two years' maintenance record of track crossing on a steel substructure. *Il diags Elec Ry J 45:68 Ja 2 '15*

See also Grade crossing elimination; Grade crossings; Railroads—Track

Curves and turnouts

Advantage and cost of spiraling curves. *W. F. Rench. Ry Age 59:765-6 O 22 '15*
 Graphical method of string-lining curves. *H. M. Church. Ry Age 59:130 J1 16 '15*
 Lateral stresses on rails in curved tracks. *G: L. Fowler Il Ry Age 59:319-22 Ag 20 '15*
 Retracing old compound railway curves. *F. W. Green. Eng N 74:364 Ag 19 '15*
 Three-centered connecting tracks between tangents and curves. *S. E. Shoup. Eng N 73:446-8 Mr 4 '15*

Two ways of laying out a compound curve. *S. Striezhem. Elec Ry J 45:426 F 27 '15*

Damages from floods, etc.

Effect of recent floods on railways. *Il Ry Age 59:729-32 O 22 '15*

Development work

Development of Long Island. *H. B. Fullerton. Ry Age 57:1040-1 D 4 '14*
 Getting city people back to the country. *F. H. La Saume. Ry Age 57:1057 D 4 '14*
 Nineteen years' development work on the Santa Fe. *Ry Age 58:1465-8 Je 25 '15*
 Railway development association semi-annual meeting, New York, Nov. 9-11. *Ry Age 59:909-12, 938-9 N 12-19 '15*

Earthwork

Building low-grade line for Norfolk & Western R. R. *Il map Eng N 74:818-21 O 28 '15*
 Calculating cross section areas on railroad valuation work. *F. T. Morse. Ry Age 59:39 J1 2 '15*
 Consolidation of earthwork during construction. *Ry R 56:532-4 Ap 17 '15*
 Construction of the Hallstead cut-off. *D. L. & W. R. R. Il diags Ry R 56:113-15 Ja 23 '15*
 Method of obtaining volumes in railroad or ditch work. *F. C. Snow. Eng & Contr 43:304 Mr 31 '15*
 Railroad subgrade troubles—preventives and cures. *J. T. Bowser. Eng Rec 72:203-4 Ag 14 '15*

See also Railroads—Grades

Electric equipment

Association of railway electrical engineers 8th annual convention, Chicago, Oct. 19-22. *Ry R 57:529-30 O 23 '15*
 Recent improvements in the electric lighting of steam railroad cars. *R. C. Lanphier. Il diags Am Inst E E Pro 34:1829-46 Ag '15*
 Underframe axle lighting equipment. *Il diags Ry R 56:568-70 Ap 24 '15; Ry Age (Mech ed) 59:257-8 My '15*
 Underground cable on the Pennsylvania railroad. *I. C. Forshee. Il Ry Age 59:269-71 Ag 13 '15*

Electrification

Adding electric power to a railroad between the Broad street station and the West Philadelphia yards. *Sci Am 113:95 J1 31 '15*
 Australian railways to be electrified. *Elec Ry J 46:1037 N 20 '15*
 Butte, Anaconda & Pacific railway contact system. *J. B. Cox. Il diags map Am Inst E E Pro 34:1447-76 Ag '15; Same. Gen Elec R 18:842-69 Ag '15; Abstract. Elec Ry J 46:59-60 J1 10 '15*
 Butte, Anaconda & Pacific railway electrical operation. *J. B. Cox. Il maps Am Inst E E Pro 33:1720-53 N '14; Same. Gen Elec R 17:1047-65 N '14; Abstract. Elec Ry J 44:1050-1 N 7 '14; Abstract. Ry Age 57:1193-5 D 25 '14; Abstract. Eng & Min J 99:529-30 Mr 20 '15; Discussion. Am Inst E E Pro 34:134-43 Ja '15*
 Canadian Northern tunnel and terminal electrification. *W. C. Lancaster. Il diags maps Gen Elec R 17:1066-75 N '14; Same. Ry R 55:710-15 D 13 '14*
 C. M. & St. Paul—electrification of 440.5 miles. *Il map Ry Age 59:683-9 O 15 '15*
 C. M. & St. P.—electrification of the Puget Sound lines. *A. H. Armstrong. Il diags maps Gen Elec R 18:5-9 Ja '15; Same. Ry Age 57:1125-6 D 18 '14; Same. Elec R & W Elec'n 65:1205-8 D 26 '14; Same. Ry R 56:98-100 Ja 16 '15*
 C. M. & St. P. electrification progresses rapidly. *Eng N 74:862 O 23 '15*
 Chicago, Milwaukee & St. Paul—great railway electrification project. *Il map Sci Am S 79:56-8 Ja 23 '15*
 C. M. & St. P.—operating plans for the electrified division. *Il Elec Ry J 44:1341-2 D 19 '14*
 Chicago, Milwaukee & St. Paul Ry.—electric traction. *diag map Eng N 73:22-3 Ja 7 '15*
 Chicago, Milwaukee and St. Paul railway electrification. *diags map Engineer 119:104-6 Ja 29 '15*

Railroads—Electrification—Continued

- C. M. & St. P. railway; electrification of Great Falls terminal. *Il Elec Ry J 45:1172-3 Je 19 '15*
- C. M. & St. P. railway; electrification of Great Falls terminal. *Il Elec R & W Elec'n 66:1167-8 Je 19 '15*
- Chicago, Milwaukee & St. Paul Ry.—electrification of terminal line at Great Falls, Mont. *Il Ry R 57:57-8 JI 10 '15*
- Chicago, Milwaukee & St. Paul railway; 1500-volt electrification. W. D. Bearce. *Il Gen Elec R 18:644-5 JI '15*
- C. M. & St. P. railway—Great Falls terminal line now electrically operated. *Il Eng Rec 71:167 Je 19 '15*
- C. M. & St. P. railway high-voltage direct-current system. *Elec W 64:1186 D 19 '14*
- Chicago, Milwaukee & St. Paul railway—progress on the electrification. *Il Elec R & W Elec'n 67:769-71 O 23 '15; Elec Ry J 46:794-8 O 16 '15; Eng Rec 72:518 O 23 '15; Ry R 57:556-8 O 30 '15; Power 42:643-6 N 9 '15*
- Chicago, Milwaukee & St. Paul Ry.—3000-volt direct-current electrification of the Puget Sound lines. *Power 41:72 Ja 12 '15*
- C. M. & St. P. Ry.—transmission system of the electrified divisions. R. E. Wade. *Il Ry R 57:303-5 Ag 14 '15*
- Conditions affecting the success of main line electrification. W. S. Murray. *Il Am Inst E E Pro 34:1873-1913 Ag '15; Same. J Fr Inst 179:513-57 My '15; Same cond. Elec Ry J 45:229-31 Ja 30 '15; Same cond. Ry Age 58:923-8 Ap 30 '15; Discussion. Am Inst E E Pro 34:1913-23 Ag '15; Same. J Fr Inst 180:75-99 JI '15*
- Conservatism in railroad electrification. W. S. Murray. *Eng Rec 71:178-9 F 6 '15*
- Construction, maintenance and cost of overhead contact systems; catenary construction. F. Zogbaum. *Am Inst E E Pro 34:1267-81 Je '15; Abstract. Elec Ry J 46:56-7 JI 10 '15*
- Contact rail installation in England. *Il diag Elec Ry J 46:154-6 JI 24 '15*
- Electric motive power in the operation of railroads. W. Hood. *Ry Age 59:603-4 O 1 '15*
- Electric motive power in the operation of railroads; abstracts. E. H. McHenry. *Elec Ry J 46:623 S 25 '15; Ry Age 59:602-3 O 1 '15*
- Electrical night at N. Y. R. R. club. *Elec Ry J 45:824-5 Mr 27 '15*
- Electrification discussed at meeting of Western society of engineers. *Elec Ry J 45:579-81 Mr 20 '15*
- Electrification of American railways. R. Gordon. *Il Eng M 49:34-42 Ap '15*
- Electrification of main-line railroads; abstract. B. F. Woods. *Elec W 65:1518 Je 12 '15*
- Electrification of steam railways. *Ry R 56:407-8 Mr 20 '15*
- Electrifying steam railroads. *Sci Am 112:558 Je 5 '15*
- Inertia effect of moving electric trains. J. McAnnix. *Elec Ry J 45:714-15 Ap 10 '15*
- Jamestown, Westfield & Northwestern railroad electrification. *Il map Elec Ry J 45:1110-11 Je 12 '15*
- London & Port Stanley railroad electrification. *map Elec Ry J 44:1387-8 D 26 '14*
- London and Southwestern railway electrification. *Il diag Engineer 120:289-91, 310-13, 342, 346-9 S 24-O 8 '15*
- London & South-western railway suburban electrification. *Il Elec Ry J 46:225 Ag 7 '15*
- Mountain railway electrification. F. Castiglioni. *Elec Ry J 46:858-60 O 23 '15*
- New departure in the electrification of steam railways. *Eng N 73:595-6 Mr 25 '15*
- New electrification work on London suburban railroads. *Elec R & W Elec'n 67:852-4 N 6 '15*
- New Haven operating results. *Elec Ry J 46:101-2 JI 17 '15*
- Norfolk & Western electrification. *Il plans map Elec Ry J 45:1053-69 Je 5 '15*
- Norfolk & Western electrification. *Il Power 41:830-5 Je 22 '15*
- Norfolk & Western Elkhorn grade electrification. *Il diag map Ry Age 58:1153-63 Je 4 '15*
- Norfolk & Western—new field for railway electrification developed. *Il Eng Rec 71:704-8 Je 5 '15*
- Norfolk & Western single-phase electrification. *Il Elec W 65:1456-9 Je 5 '15*
- Norfolk & Western railway—electric traction. *Il diag plans Eng N 73:1192-5, 1238-43 Je 17-24 '15*
- Norfolk & Western railway electrification. *Engineer 120:57 JI 16 '15*
- Norfolk & Western Ry.—electrification of the Elkhorn grade. *Il diag Ry R 56:756-61, 791-7; 57:101-7, 150-2 Je 5-12, JI 24-31 '15*
- Norfolk & Western railway; electrification of the Elkhorn grade. *Il Sci Am S 79:372-4 Je 12 '15*
- Ontario municipal railway—1500-volt direct-current electrification. G. H. Hill. *Gen Elec R 18:10-11 Ja '15*
- Operating results of the electrification of steam railroads; with discussion. G. Gibbs, E. B. Katte, W. S. Murray and C. A. Goodnow. *W Soc E J 20:308-33 Ap '15; Abstract. Am Soc M E J 37:357 Je '15*
- Overhead construction in the Philadelphia-Paoli electrification. *Il Elec Ry J 46:1113 Je 12 '15*
- Overhead contact systems, construction and costs. E. J. Amberg. *pls Am Inst E E Pro 34:1255-66 Je '15; Abstract. Elec Ry J 46:58 JI 10 '15*
- Passing of the steam locomotive. C. B. Brewster. *Il Sci Am 113:488-9 D 4 '15*
- Paths of progress. *Gen Elec R 18:3-4 Ja '15*
- Pennsylvania inaugurates electric service in Philadelphia. *Il diag Eng Rec 72:590-3 N 13 '15*
- Pennsylvania railroad electrification at Philadelphia. *Il Elec R & W Elec'n 67:923-8 N 20 '15*
- Pennsylvania railroad electrification at Philadelphia. *Il map Ry Age 59:883-94 N 12 '15*
- Pennsylvania railroad electrification at Philadelphia. *Il plan Elec W 66:1074-6 N 13 '15*
- Pennsylvania railroad—electrification of suburban line at Philadelphia. *Il Ry R 57:37-40, 611-19 JI 10, N 13 '15*
- Pennsylvania railroad electrifies Philadelphia district. *Il map Eng N 74:030-3 N 11 '15*
- Pennsylvania railroad—electrifying the Philadelphia-Paoli division. *Il Sci Am 113:444 N 20 '15*
- Philadelphia-Paoli electrification. *Il diag Elec Ry J 46:980-9 N 13 '15*
- Power distribution on Pennsylvania R. R. at Philadelphia. *Il plan Power 42:833-6 N 16 '15*
- Progress in railway electrification in 1914. N. W. Storer. *Ry Age 58:12 Ja 1 '15*
- Radiator-type transformers for the New Haven system. *Il diag Elec W 65:401-3 F 20 '15*
- Railway electrification at Sydney, Australia. *Elec R & W Elec'n 67:903 N 13 '15*
- Railway electrification—possibilities and precautions. W. S. Murray. *Eng Rec 71:394 Mr 27 '15*
- Results of Italian three-phase electrifications. G. Pontecorvo. *Il Elec Ry J 45:450-4 Mr 6 '15*
- Review of electric railways. W. B. Potter and G. H. Hill. *Il Gen Elec R 18:444-53 Je '15*
- Running railroads by water power. T. F. Logan. *Il Sci Am 112:603-4 Je 19 '15*
- St. Clair tunnel electrification operating data. *Elec Ry J 46:1084-5 N 27 '15*
- Silesian single-phase electrification. *diag map Elec Ry J 45:866-7 Ap 3 '15*
- Southern Pacific company Portland division contact system. P. Lebenbaum. *Il diag map Am Inst E E Pro 34:1295-1308 Je '15; Abstract. Elec Ry J 46:57-8 JI 10 '15*
- Symposium on operating results of steam-railroad electrifications. *Elec R & W Elec'n 66:540-1 Mr 20 '15*
- Three thousand-volt direct-current electric locomotives for the Chicago, Milwaukee & St. Paul railway. *Il Sci Am 113:391-4 N 6 '15*
- Training steam railroad men for electric operation. C. Roberts. *Il diag Elec Ry J 45:970-2 My 22 '15*
- Vienna-Pressburg electrification. E. E. Seefehlner. *Elec Ry J 46:593 S 18 '15*
- West Jersey and seashore railroad; third rail and trolley system. J. V. B. Duer. *Il diag Am Inst E E Pro 34:1237-53 Je '15*
- See also Electric locomotives; Electric railroads.

Railroads—Continued

Employees

Address to apprentices. G. M. Basford. Ry Age (Mech ed) 89:185-6 Ap '15
 Answer to "A clerk's plea." K. Lean. Ry Age 59:682 O 15 '15
 Answer to "A clerk's plea." L. E. Riley. Ry Age 59:1000 N 26 '15
 Are you making friends for your railroad? R. V. Wright. Ry Age 58:129-31 Ja 22 '15
 Clerk's plea. Ry Age 59:459-60 S 10 '15
 Commission on industrial relations sits in Washington. Ry Age 58:616-18 My 8 '15
 Difficulties in increasing the scope of the section foreman's duties. J. P. Costello. Ry Age 58:1449-50 Je 18 '15
 Efficiency and discipline systems. E. J. Devans. Ry Age 57:409-10 S 25 '15
 Helping the apprentice. H. E. Blackburn. Ry Age (Mech ed) 89:582-3 N '15
 How can you help the apprentice? prize letter and others received in the competition. Ry Age (Mech ed) 89:531-2 O '15
 Industrial commission inquires into railroad employment. Ry Age 58:488-9 Ap 10 '15
 Industrial commission investigates 1911 strike. Ry Age 58:823 Ap 16 '15
 Industrial mediation and conciliation. J. Kruttschnitt. Ry Age 58:636-7 My 8 '15; Excerpts. Ry Age 58:1126-7 My 28 '15
 Is the railroad Y. M. C. A. really worth while? Ry Age 58:295-6, 358-60 F 19-26 '15
 Italian-English course of the Pennsylvania railroad. Il Ry Age 59:354-5 Ag 20 '15
 McComb apprenticeship plan, Illinois Central railroad. H. N. Saney. Ry Age 57:619-20 N 13 '15
 Making of good car inspectors. A. M. Orr; "E. C." Ry Age (Mech ed) 89:575-8 N '15
 Mr. Ripley and the Santa Fe family. Ry Age 57:584-5 N 6 '15; Abstract. Ry Age 59:851 N 5 '15
 Physical examinations of section foremen. W. E. Schott. Ry Age 57:1147 D 18 '14
 Plan for improving the position of railway clerks. Ry Age 59:387 N 12 '15
 Present welfare work of French railroads. W. S. Hiatt. Ry Age 59:60 J1 9 '15
 Productive efficiency and wages. Ry Age 58:118-19 Ja 22 '15
 Public regulation of wages of railway employees. F. H. Dixon. Ry Age 58:929-32 Ap 30 '15
 Qualifications of a terminal superintendent. S. W. Roberts. Ry Age 59:434-5 S 3 '15
 Relations of the section foreman and the public. J. T. Bowser; W. E. Schott. Ry Age 58:381-2 F 19 '15
 Section foremen's debating society on the C. M. & St. P. Ry. W. H. Kofmehl. Ry Age 58:666 My 15 '15
 Southern Pacific employees given prizes for solicitation of traffic. Ry Age 58:1046 My 21 '15
 Start the apprentice right. Ry Age (Mech ed) 89:585-6 N '15
 Steady employment for section men, on the Long Island R. R. C. King. Ry Age 58:539-40 Ap 17 '15
 Testimony in the western wage arbitration. Ry Age 58:156-7 Ja 30 '15
 Track labor problem. E. T. Howson. Ry Age 59:522-4 S 17 '15
 Track maintenance. K. L. Van Auken. Ry Age 57:526-9, 660-3 O 23, N 20 '15
 Training of railway employees. D. C. Buell. Ry Age 59:454-5 S 10 '15
 Training of young men with reference to promotion. G. M. Basford. Ry Age 59:150-3 J1 22 '15
 Unemployment on railroads. Ry Age 58:214-15 F 5 '15
 Unemployment resulting from railroad depression. Ry Age 58:31-2 Ja 1 '15
 United States board of mediation and conciliation annual report. Ry Age 58:192-4 Ja 29 '15
 Unnoticed unorganized employees. H. Pigeon. Ry Age 59:416 S 3 '15
 War test of French politeness. W. S. Hiatt. Ry Age 59:278 Ag 13 '15
 Welfare work at Pittsain, Pa., freight transfer. Ry Age 59:609-10 O 1 '15

Why cost of operation has decreased on the Frisco. F. D. Wrightsman. Ry Age 58:1464 Je 25 '15

See also Locomotive engineers; Locomotive firemen; Railroads—Freight agents; Railroads—Station agents; Train dispatchers

Equipment and supplies

Accounting for rail and ties. C. E. Parks. Ry Age 58:470 Mr 12 '15
 Economy in the use of track material. J. T. Bowser. Ry Age 57:239 Ag 21 '15
 Fighting caterpillars with steam. Il Sci Am 112:104 Ja 30 '15
 First principles of economy; handling railroad scrap. Ry Age 58:443-5 Mr 27 '15
 Foreign specifications for railway material. J. Fr Inst 180:615-16 N '15
 Freight car stenciling outfit. H. F. Blossom. diag Ry Age (Mech ed) 89:458 S '15
 General stores department. H. C. Stevens. Ry Age 58:835 Ap 16 '15
 Handling of new and scrap maintenance materials; prize winning and other papers. Ry Age 57:339-44, 531-6; 58:320-4 Ag 21, S 18 '14, F 19 '15
 Income from the maintenance of way department. Ry Age 58:1071 My 21 '15
 Locomotive and train supplies on the Frisco. Il Ry Age 58:697-9 Mr 28 '15
 Master blacksmiths' convention; discussion of reclaiming scrap. Ry Age (Mech ed) 89:473 S '15
 Mechanical purchasing and stores departments. H. C. Pearce. Ry Age 58:1249-50 Je 11 '15
 Modern reclamation plant and scrap yard. Ry Age 57:281-4 Ag 28 '15
 Organizing the supply department on the Seaboard air line. H. C. Pearce. Ry Age 58:45-7 Ja 8 '15
 Pennsylvania railroad test department. C. D. Young. Il plan Ry Age (Mech ed) 89:332-7 J1 '15; Same. Ry Age 59:6-11 J1 3 '15; Same. Ry Age 57:2-5, 42-6, 117-18 J1 3-10, 24 '15
 Plant for handling scrap on the Boston & Albany. Il diags Ry Age 58:745-6 Ap 2 '15
 Precedent versus progress in the stores department. G. C. Yeomans. Ry Age 59:237-8 Ag 6 '15
 Railroadings from a general storekeeper's point of view. J. G. Stuart. Ry Age 57:700-3 N 27 '15
 Railway storekeepers' association 12th annual convention. Ry Age 58:1039-40, 1125-6 My 21-28 '15
 Railway storekeepers' association 12th annual convention. Ry Age 58:688-93 My 22 '15
 Railway storekeepers' convention. Ry Age (Mech ed) 89:285-90 Je '15
 Railways and the manufacture of equipment. Ry Age 59:223-3 Ag 6 '15
 Reclamation of material; report of committee of Railway storekeepers' association. Ry Age (Mech ed) 89:317-18 Je '15
 Reclamation of scrap on the Great Northern. Il Ry Age 58:967-70 My 7 '15; Same. Ry Age (Mech ed) 89:305-8 Je '15
 Scrap-handling plant of Boston & Albany railroad. Il Eng Rec 70:651-2 D 12 '14
 Signal and supply departments. C. R. Ahrens; R. D. Long; A. G. Shaver. Ry Age 57:120-4 J1 24 '15
 Why throw away what we need. Ry Age 55:770-1 D 26 '14
 See also Air brakes; Brakes; Car couplings; Cars; Freight cars; Locomotives; Railroad supplies industry; Railroad ties; Railroads—Electric equipment; Railroads—Electrification; Railroads—Maintenance and repair; Railroads—Management; Railroads—Safety devices and measures; Railroads—Sanitation; Railroads—Shops; Railroads—Signals; Railroads—Tools and implements; Rails; Track scales

Equipment trusts

Bankers and equipment trust certificates. Ry Age 58:53-4 Ja 8 '15
 Security of equipment trust certificates. Ry Age 58:43 Ja 8 '15

Railroads—Continued

Exhibitions

Railway exhibit at the Panama-Pacific international exposition at San Francisco, Cal. II plan Ry R 56:685-8, 719-21, 765-8, 811-12, 882-5 My 22-Je 12, 26 '15
 Railways and the California expositions. II Ry Age 59:499-502 S 17 '15
 Transportation exhibits at the Panama exposition. W: S. Wollner. Ry Age 58:373-5 F 26 '15

Fares

Campaign for advances in passenger rates. Ry Age 58:255-6 F 12 '15
 Campaign for increased passenger fares. Ry R 56:191-3 F 6 '15
 "Campaign of candor" for higher passenger fares. Ry Age 58:259-60 F 12 '15
 Case for higher passenger fares in the West. Ry R 57:51-3, 89-90 J1 10-17 '15
 Former railroad commissioner's views on passenger fares. C. V. McAdams. Ry Age 58:102-3 Ja 15 '15
 Hearing on advances in western passenger fares. Ry Age 59:55-7, 93-6, 153-4 J1 9-23 '15
 Lower passenger fares and higher freight rates. Ry Age 59:184-6 J1 30 '15
 Passenger fare question in Ohio. L. E. Johnson. Ry Age 58:747-8 Ap 2 '15
 Supreme court decisions in two state rate cases. Ry Age 58:632-3 Mr 19 '15

Fences

Cost of fence wire, wood and steel posts. Eng N 74:362 Ag 19 '15
 4½ miles of concrete fence flank transit route on Sea beach line improvement in Brooklyn. II Eng Rec 72:58 J1 17 '15
 Specifications for standard right-of-way fences: report of A. T. E. A. committee. Ry R 56:387-90 Mr 20 '15

Finance

Annual reports of railroads. See weekly numbers of Railway age gazette
 Annual reports of the Chesapeake and Ohio, Hocking valley and Chicago, Milwaukee & St. Paul railways. Ry Age 59:624-30 O 1 '15
 Aspects of the financial problem of the railways; effect which the Federal reserve act will have on needs of railways for new capital. H. F. Willis. Ry Age 58:999-1002 My 14 '15; Excerpts. Ry 56:734-7 My 29 '15
 Buffalo, Rochester & Pittsburgh railway company's 30th annual report. map Ry Age 59:310-11, 870-2 Ag 20 '15
 Canadian Pacific railway 34th annual report. map Ry Age 59:377-8, 410-12 Ag 27 '15
 Chicago, Rock Island & Pacific—1902 to 1915. Ry Age 58:774-6 Ap 9 '15
 Chicago, Rock Island & Pacific receivership. Ry Age 58:890 Ap 23 '15
 Chief engineers discuss grade-crossing law and cost distribution. Eng Rec 71:465-6 Ap 10 '15
 Conservatism in railroad electrification. W. S. Murray. Eng Rec 71:178-9 F 6 '15
 Division of railway income between capital and labor. W. A. Worthington. Ry Age 59:208 Ag 13 '15
 Effect of recent legislation and other conditions as reflected in the operation of the Delaware & Hudson co. L. F. Loree. II plan Ry R 56:588-91 My 1 '15
 Grade-crossing law and its effect on grade-crossing elimination. C. W. Stark. Eng Rec 71:327-9 Mr 13 '15
 Hearings on western freight rate advances. Ry Age 58:435-43 Mr 12 '15
 Interstate commerce commission's report on the Rock Island. Ry Age 59:323-7 Ag 20 '15
 Investigation of the Rock Island system. Ry R 56:321-2 Mr 6 '15
 Lehigh Valley railroad annual report for the fiscal year ended June 30, 1915. Ry Age 59:266-7, 303-6 Ag 13 '15
 Louisville & Nashville investigation. Ry Age 58:413-14 Mr 5 '15
 Maximums and minimums in train operation. A. Price. Ry R 56:286-9 F 27 '15; Same. Ry Age 58:401-3 Mr 5 '15
 Michigan Central and the Big Four. map Ry Age 58:781-3 Ap 2 '15

Necessity for additional revenues on western railways; brief submitted by C. C. Wright in western rate advance case. Ry Age 58:1415-18 Je 18 '15
 New England railroad advance situation. Ry Age 58:729-31 Ap 2 '15
 Nineteen years' development work on the Santa Fe. map Ry Age 58:1403-6 Je 18 '15
 Norfolk & Western. map Ry Age 59:491-2 S 17 '15
 Operating results of Canadian railways in 1914. J. L. Payne. Ry Age 58:687-9 Mr 26 '15
 Operation of the Long Island railroad in 1914. map Ry Age 58:814-16 Ap 16 '15
 Ownership of railway stock. Ry Age 59:186 J1 30 '15
 Parcel post and its effects on railway revenues; abstracts. V. J. Bradley. Ry Age 57:1046 D 4 '14; Eng M 48:598-6 Ja '15
 Pennsylvania railroad. map Ry Age 58:394-6 Mr 5 '15
 Property costs as a factor in rate making. Ry R 57:277-9 Ag 28 '15
 Railroad bankruptcy. Ry Age 59:632-4, 676-8, 720 O 8-22 '15
 Railroad's maintenance expenses allocated between freight and passenger service. Eng Rec 72:226-9 Ag 21 '15
 Railway insolvencies in 1914. Ry R 56:13 Ja 2 '15
 Railway revenues for the fiscal year, ending June 30, 1915. Ry Age 59:574 S 24 '15
 Receiverships and foreclosure sales. Ry Age 58:4-6 Ja 1 '15
 Recent development in railroad finance. G: A. Clark. Ry Age 58:1418-20 Je 18 '15
 Reorganizations and railroad bonds. J: E. Blunt, Jr. Ry R 57:633-4 N 13 '15
 Revenues and expenses for the fiscal year, 1915. S. Thompson. Ry R 57:266-7 Ag 23 '15
 Revenues and expenses of railways, fiscal year ending June 30, 1915. Ry Age 59:359-60 Ag 20 '15
 Revenues and expenses of railways: four months of fiscal year ending June 30, 1915. Ry Age 57:1099-1100 D 11 '14
 Revenues and expenses of railways; monthly statistics published in the Railway age gazette
 Rock Island financing. Ry R 57:243-9 Ag 21 '15
 Rock Island receivership. Ry R 56:567-8 Ap 24 '15
 St. Louis & San Francisco: comparison between the 1914 and 1913 fiscal years. Ry Age 58:119-21 Ja 22 '15
 Summary of revenues and expenses of large steam roads. Ry Age 58:277 F 12 '15
 Trend of railway earnings in the year 1914. F. H. Dixon. Ry Age 58:21-2 Ja 1 '15
 Wabash-Pittsburgh terminal reorganization plan. map Ry Age 59:146-7 J1 23 '15
 Wabash reorganization plan. Ry Age 58:978 My 7 '15
 War and pending railway finance. G: A. Clark. Ry Age 58:223-4 F 5 '15
 Why a railroad should pay a dividend. I. L. Lee. Ry Age 58:33 Ja 1 '15
See also Railroads—Equipment trusts; Railroads—Rates; Railroads—Securities; Railroads—Valuation

Fire protection

Fire fighting on the Pennsylvania system. Ry R 57:559 O 80 '15
 Fire hazards at coaling stations. Ry Ago (Mech ed) 89:562 N '15
 Railway fire protection association 2d annual meeting. Ry Age 59:691-4 O 15 '15

Freight

Accuracy of grain weights. F. C. Maegly. Ry Age 58:368-9 Ap 23 '15
 A. R. A. report on freight efficiency. Ry Age 58:1127-8 My 28 '15
 Careful loading of package freight. II Ry Age 58:965-6 My 7 '15
 Classification of freight loss and damage payments. Ry Age 59:90-1 J1 16 '15
 Cooling hogs in transit. diag. Ry Age 58:752 Ap 2 '15
 Effective freight claim preventive crusade. Ry Age 58:779-81, 817-20, 891-6 Ap 9-23 '15

Railroads—Freight—Continued

Growing magnitude of freight loss and damage claims. Ry R 56:131-2 Ja 23 '15
 Hunting stray freight on the Pennsylvania. Ry Age 59:162-3 Jl 28 '15
 Prevention of loss and damage freight claims. G. E. Whitelam. Ry R 57:692-4 N 27 '15
 Report of committee on relations between railroads. Ry Age 59:1013-15 N 26 '15
 Simple method of checking L. C. L. freight. Ry Age 59:52-4 Jl 9 '15
 Weighing of less than carload freight. E. A. O'Donnell. Ry Age 57:1197-8 D 25 '14
 Where the delivering agent falls down. D. C. Davis. Ry Age 58:966 My 7 '15
See also Freight car service; Freight cars; Freight handling; Railroads—Rates; Railroads—Terminals; Railroads—Train load

Freight agents

What the commercial agent can do for the shipper. C. K. Landes. Ry Age 59:604-5 O 15 '15

Frogs

See Railroads—Switches and frogs

Fuel

Fuel department—a constructive criticism. L. G. Plant. Ry Age 59:939-42 N 19 '15
 Fuel economy on the Great Western. Il Ry Age 58:195-7 Ja 29 '15
 Fuel oil on railroads. Sci Am S 79:303 Mr 27 '15
 International railway fuel association 7th annual convention. Ry Age 58:1054-61 My 21 '15
 International railway fuel association 7th annual convention. Ry R 56:696-703 My 22 '15
See also Locomotives—Fuel

Gages

Gaging track between rail flanges. E. Keough. Il Ry Age 57:1150 D 18 '14
See also Railroads, Narrow gage

Government ownership

See Railroads and state

Grades

Grade reduction on the Kentucky division of the Illinois Central R. R. F. G. Water, jr. Il Ry R 57:389-93 S 25 '15
 Superheater locomotives and grade revision. P. M. La Bach. Ry Age 59:469-71 S 10 '15

Ice supply

Design of railroad ice storage houses. Eng & Contr 42:563-5 D 16 '14; Abstract. Ry Age 57:759-60 O 23 '14
 40,000-ton railroad icehouse electrically operated. plans Eng Rec 72:132 Jl 31 '15

Labor

See Railroads—Employees

Laboratories

Pennsylvania railroad test department. C. D. Young. Il plan Ry Age (Mech ed) 89:332-7 Jl '15; Same. Ry Age 59:6-11 Jl 2 '15; Same. Ry R 57:2-5, 42-6, 117-18 Jl 3-10, 24 '15; Excerpts. Metal Ind n s 13:288-9 Jl '15

Law

See Railroad law

Location

Economics of railway location: report of A. R. El. A. committee. Ry R 56:391-3 Mr 20 '15; Same. Eng Rec 71:870-2 Mr 20 '15

See also Railroad surveying

Maintenance and repair

Difficulties in increasing the scope of the section foreman's duties. J. P. Costello. Ry Age 58:1449-50 Je 13 '15
 Economical handling of maintenance of way painting. Ry Age 57:1184 D 18 '14
 Handling of new and scrap maintenance materials; prize winning and other papers. Ry Age 57:339-44, 581-6; 58:320-4 Ag 21, S 18 '14, F 19 '15
 Increasing the scope of the section foreman's duties. E. R. Lewis. Ry Age 58:463-4 Mr 12 '15

Maintenance of way master painters' 12th annual convention. Ry Age 59:968-9 N 19 '15
 One effect of retrenchment in maintenance of way expenditures. Ry Age 58:175-6 Ja 29 '15

Promoting the growth of vegetation on the slopes. W. F. Rench. Ry Age 58:471-2 Mr 12 '15

Railway economics. W. A. Smith. Ry R 56:34-5 Ja 16 '15

Safety hints to section foremen. A. W. Ross. Ry R 56:247-8 F 20 '15

Tool equipment for maintenance of way forces. Ry Age 59:337-41 Ag 20 '15

See also Cars—Repair; Freight cars—Cost of maintenance; Freight cars—Repair; Locomotives—Repair; Railroad ties; Railroads—Construction; Railroads—Equipment and supplies; Railroads—Maintenance of way department; Railroads—Management; Railroads—Track; Railroads—Track inspection; Railroads—Work trains; Rails

Maintenance of way department

Income from the maintenance of way department. Ry Age 58:1071 My 21 '15
 Suggestions for a book of rules for the maintenance of way department, embodying the safety first idea. J. T. Bowser. Ry Age 58:463-9 Mr 12 '15

Management

Adversity and office rent. Ry R 56:18 Ja 2 '15
 American association of railroad superintendents 28th annual convention. Ry Age 59:379-82 Ag 27 '15
 Car department correspondence and reports. C. Claudy. Ry Age (Mech ed) 89:72 F '15
 Car distributor. J. L. Coss. Ry Age 59:159 Jl 23 '15
 Censorship of railway messages. W. W. Hall. Ry Age 58:1479 Je 25 '15
 Construction, maintenance and cost of overhead contact systems; catenary construction. F. Zogbaum. Am Inst E E Pro 34:1267-81 Je '15
 Engine house organization. W. P. Huntley. Ry Age (Mech ed) 89:135-6 Mr '15
 Fuel department—a constructive criticism. L. G. Plant. Ry Age 59:939-42 N 19 '15
 General manager's supervision over division performance. Ry Age 58:360-1 F 26 '15
 Handling of local or way-freight trains. R. R. Farmer. Ry Age 57:1117 D 18 '14
 How railway earnings should be increased; a shipper's view. I. W. Coyle. Ry Age 58:13 Ja 1 '15
 How the operation of one terminal was improved. G. D. Brooke. Ry Age 58:1131-4 My 28 '15
 Increasing the scope of the section foreman's duties. E. R. Lewis. Ry Age 58:463-4 Mr 12 '15
 Mechanical purchasing and stores departments. H. C. Pearce. Ry Age 58:1249-50 Je 11 '15
 Mechanical side of railroading. W. Schlafke. Ry R 56:474-6 Ap 3 '15; Same. Ry Age (Mech ed) 89:283-4 Je '15
 Nineteen years' development work on the Santa Fe. map Ry Age 58:1403-6, 1465-8 Je 18-25 '15
 Organization for emergencies. Ry Age 58:142 Ja 22 '15
 Organization for track maintenance from a committee report to the Roadmasters' and maintenance of way association. Ry R 56:221-4 F 13 '15
 Organization in the maintenance of way department. Ry Age 58:334 Ap 16 '15
 Organizing the supply department on the Seaboard air line. H. C. Pearce. Ry Age 58:46-7 Ja 8 '15
 Pertinent advice to the railroad superintendent. Ry R 56:771 D 26 '14
 Railroad accounting officer. H. W. Davies. Ry Age 58:1112 My 28 '15
 Reclamation of material: report of committee of Railway storekeepers' association. Ry Age (Mech ed) 89:317-18 Je '15
 Suggested organization for track maintenance. G. C. Crites. Ry Age 57:1148 D 18 '14
 Superintendent—past, present and future. E. H. DeGroot, jr. Ry R 55:359-60 S 19 '14; Same. Ry Age 58:181-2 Ja 29 '15

Railroads—Management—Continued

Terminal proposition. R. M. Baker. Ry Age 59:191-2 J1 30 '15
 Trainmaster and the engine-house foreman. J. L. Coss. Ry Age 58:960-1 My 7 '15
 Value of neatness. H Ry Age 58:487-8 Mr 12 '15
 Vice-president in charge of labor. J. L. White. Ry Age 58:397-8 My 14 '15
 Wanted—directors who will direct. Ry Age 58:814 Ap 18 '15

See also Freight car service; Freight handling; Locomotives; Railroads—Claims; Railroads—Development work; Railroads—Employees; Railroads—Equipment and supplies; Railroads—Finance; Railroads—Maintenance and repair; Railroads—Maintenance of way department; Railroads—Public relations; Railroads—Rates; Railroads—Records; Railroads—Safety devices and measures; Railroads—Signals; Railroads—Work trains; Railroads—Yards; Train dispatching; Wire-less telegraph for railroads

Officials

Necrology, 1914. Ry R 56:42-4 Ja 2 '15
 Public influence of the railroad superintendent. W. Sproule. Ry R 57:422-3 O 2 '15

Operation

See Railroads—Management

Organization

See Railroads—Management

Passenger fares

See Railroads—Fares

Plantations

Successful example of free planting. A. S. Baldwin. H Ry Age 58:356 Ap 16 '15

Public relations

Are you making friends for your railroad? R. V. Wright. Ry Age 58:129-31 Ja 22 '15
 Department of public policy and relations. Ry Age 59:375-6 Ag 27 '15
 Pennsylvania railroad publicity. Elec Ry J 45:1042-3 My 29 '15
 Press and the rate advance case. Ry Age 58:776 Ap 9 '15
 Public influence of the railroad superintendent. W. Sproule. Ry R 57:422-3 O 2 '15
 Railroad—a public servant. W. E. Williams. Ry R 57:297-8 S 4 '15
 Railroads and the people; abstracts. W. Sproule. Ry R 57:668-9 N 20 '15; Ry Age 59:1009-10 N 26 '15
 Railway troubles due to lack of public understanding. W. G. Harding. Ry Age 57:1114-16 D 18 '15
 Reasons for the unpopularity of railroads. A. M. Schoyer. Ry Age 57:1053-4 D 4 '14
 Relations of the section foreman and the public. J. T. Bowser; W. E. Schott. Ry Age 58:331-2 F 19 '15
 Value of publicity for railroads. O. G. Villard. Ry Age 58:1480 Je 25 '15
 What the commercial agent can do for the shipper. C. K. Landes. Ry Age 59:694-5 O 15 '15

See also Railroads and state

Rails

See Rails

Rates

Anthracite coal rates reduced in Pennsylvania. Ry Age 57:1195 D 25 '14
 Arkansas rate situation. W. B. Biddle. Ry R 57:262-3 Ag 28 '15
 Carriers submit new plans for adjustment of transcontinental freight rates. Ry Age 58:785-6 Ap 9 '15
 Commission equalizes St. Louis grain rates. Ry R 57:72-3 J1 17 '15
 Commission forbids Chicago terminal charges. Ry R 56:868-9 Je 26 '15
 Commodity rates to the Pacific coast terminals. Ry Age 58:297-9 F 19 '15
 Confiscation defined by the highest authority. Ry R 56:353-5 Mr 13 '15

Decision granting the five per cent rate advance: full text of the majority opinion and dissenting opinions of chairman Harlan and commissioner Clements. Ry Age 57:1173-8 D 25 '14

Decision in the Arkansas rate case. Ry Age 58:324 Ap 16 '15

Decision in the western rate advance case. Ry R 57:208-13 Ag 14 '15

Decision on anthracite rates. Ry R 57:215, 250-3 Ag 14-21 '15

Decision on the Cummins amendment. Ry R 56:705-7 My 22 '15

Decision on transportation of railroad fuel. Ry R 57:269 Ag 28 '15

Effect of the rate advance decision. D. Willard. Ry Age 58:3-9 Ja 1 '15

Fair rates and prosperity. E. D. Sewall. Ry R 56:490 Ap 10 '15

Five per cent rate increase granted: the text of the decision. Ry R 55:779-81 D 26 '14

Following the commission's advice. Ry Age 57:1032-3 D 4 '14

For a 40-cent iron-ore rate. Iron Age 95:194 Ja 21 '15

Freight rates and business activity. J. W. Bettendorf. Ry Age 58:750 Ap 2 '15

Freight terminal charges at New York. Ry Age 59:375-6 Ag 27 '15

Hearings on western freight rate advances. Ry Age 58:435-43, 617-19, 783-5, 821-3, 901-2, 938-40, 1019-21, 1061-2 Mr 12-18, Ap 9-30, My 14-21 '15

Hearings on western freight rate advances; testimony on coal rates, etc. Ry Age 58:740-3 Ap 2 '15

Hearings on western freight rate advances; testimony on rates on meat packing house products, livestock, hay, cotton piece goods. Ry Age 58:700-2 Mr 26 '15

Hearings on western rate advance case. Ry R 56:309-10, 342-4, 412-13, 437-8, 472-4, 504-6, 650-2 Mr 6-Ap 10, My 15 '15

It is now up to the eastern railroads. Ry Age 57:1169 D 25 '14

Missouri allows increased passenger and freight rates. Ry R 57:664 N 20 '15

Missouri commission allows general advances in rates. Ry Age 59:942 N 19 '15

Necessity for additional revenues on western railways; brief submitted by C. C. Wright in western rate advance case. Ry Age 58:1415-18 Je 18 '15

Net revenues in their bearing on rates. Ry R 55:696-7 D 5 '14

New era for railroads. D. Willard. Ry Age 58:135 Ja 22 '15

New York commission lacks power to increase rates beyond legislative maximum. Elec Ry J 46:126 J1 17 '15

New York freight terminals, 1914. Ry Age 59:395-7 Ag 27 '15

Panama canal competition. Iron Age 95:393 F 18 '15

Plan for constructing back-haul rates laid down. Ry R 56:693 My 22 '15

Property costs as a factor in rate making. Ry R 57:277-9 Ag 28 '15

Railroad rates from investors' point of view. J. E. Oldham. Ry Age 58:89-92 Ja 15 '15

Railroads cannot equalize. Iron Age 95:624 Mr 18 '15

Railroads granted five per cent advance. Iron Age 94:1447-8 D 24 '14

Railroad's maintenance expenses allocated between freight and passenger service. Eng Rec 72:226-9 Ag 21 '15

Railways ask rehearing of western rate case. Ry Age 59:593-7 O 1 '15

Railways of the South explain rate readjustment. Ry R 56:219-20 F 13 '15

Rate adjustments in southeastern territory. Ry Age 58:263 F 12 '15

Rate suspensions by the Interstate commerce commission. Ry Age 58:6 Ja 1 '15

Reconsigning charges on freight shipments. J. A. Shepherd. Ry R 57:333 S 11 '15

Reduction in trans-continental rates allowed to meet canal competition. Ry R 56:801-2 My 1 '15

Reductions ordered in rates on anthracite coal. Ry Age 59:313-18 Ag 20 '15

Spotting charges denied. Ry R 57:75-6 J1 17 '15

Railroads—Rates—Continued

Supplementary order in the five per cent case. Ry Age 57:1118 D 18 '14
 Supreme court decisions in two state rate cases. Ry Age 58:830-3 Mr 19 '15
 Suspension of advances in rates. Ry Age 58:80-1 Ja 15 '15
 Tariffs on waste materials stricken out. Ry R 57:40-1 J1 10 '15
 Transcontinental roads propose further reductions in rates to meet canal competition. Ry Age 59:597 O 1 '15
 Trap car hearing. Ry Age 58:761 Ap 2 '15
 Trap or ferry car service charges; opinion by Commissioner Clements. Ry Age 59:213-14 J1 30 '15; Same abr. Ry R 57:107-8 J1 24 '15
 28th annual report of the Interstate commerce commission. Ry R 56:20-1 Ja 2 '15
 Two important commerce commission decisions; industrial railways and car spotting charges. Ry Age 59:99-102 J1 18 '15
 Ulster and Delaware railroad rate case. Elec R & W Elec'n 67:112-14 J1 17 '15
 Western railways get a small rate increase. Ry Age 59:285-91 Ag 18 '15
 Western rate advance case; extracts from the general brief of the carriers. Ry R 56:880-2 Je 26 '15
 Western rate advance hearing; testimony of protestants against the proposed advances in the rates on livestock. Ry Age 58:978-4 My 7 '15

See also Interstate commerce commission; Railroads—Fares

Records

Cost of structures; details to be kept in time book. Ry Age 59:760 O 22 '15
 Efficient control of railroad operations. F. L. Hutchins. Ry Age 59:206 J1 30 '15
 Federal valuation of the Boston and Maine railroad. F. C. Shepherd. Boston Soc C E J 2:291-320 O '15
 Greatest present need of railroads. F. L. Hutchins. Ry R 57:178-80 Ag 7 '15
 I. C. C. accident reports. Ry Age 59:695-6 O 15 '15
 Index-record of station agents. Ry Age 59:702 O 15 '15
 New accident report forms. Ry Age 59:272-3 Ag 13 '15
 Track-clearance records. J. G. Wishart. Eng N 73:481-2 Mr 11 '15
 True theory of railroad operating records. F. L. Hutchins. Ry Age 58:182-3 Ja 22 '15
 Using a blank to prevent demurrage. H. A. Russell. Iron Age 96:415 Ag 19 '15

Regulation

See Railroads and state

Repair shops

See Railroads—Sanitation; Railroads—Shops

Rolling stock

Economy in track work and its relation to rolling stock. J. W. Powers. Ry Age 58:479 Mr 13 '15
 Foreign rail, wheel and axle specifications. Iron Age 96:52-4 J1 1 '15
 High capacity narrow-gauge rolling stock. 11 diags Engineer 120:200-1 Ag 27 '15
 Standardisation of railway equipment on the continent. Engineer 118:580-1 D 18 '14
 Upkeep of railway carriages. Engineer 120:171-3 Ag 20 '15
 Uses of the locomotive crane in railway service. 11 Ry Age 59:110-15 J1 16 '15
See also Baggage and express cars; Cars; Freight cars; Locomotives; Motor cars (railroad)

Safety devices and measures

Bill for block signals, automatic stops, steel cars, headlights and investigations (Stevens bill). Ry R 56:125-7 Ja 23 '15
 Extensible trap door for passenger cars. 11 diag Ry Age 59:207-8 J1 30 '15; Same. Ry Age (Mech ed) 89:430-1 Ag '15
 Practical methods in accident prevention. G. Bradshaw. Ry R 57:46-7 J1 10 '15
 Promoting safety in the maintenance department. 11 Ry Age 58:148-52 Ja 22 '15

Protection of grade crossings. 11 Ry R 57:531-2 O 23 '15; Same cond. Ry Age 59:763-4 O 22 '15

Railroad sessions of National safety congress. Ry Age 59:313-16 O 29 '15

Railway safety and railway economics. Sci Am 113:46 Ja 9 '15

Report of the chief inspector, division of safety, Interstate commerce commission. H. W. Belnap. Ry R 56:226-7 F 13 '15

Report of the division of safety, I. C. C. Ry Age 58:99-100 Ja 15 '15

Safety and short trains. M. A. Dow. Ry Age 58:1006-8 My 14 '15

Safety first work on the Southern Pacific. W. H. Whalen. Ry Age 58:1021 My 14 '15

Safety hints to section foremen. A. W. Ross. Ry R 58:247-8 F 20 '15

Safety in care and use of industrial railways. diag Foundry 43:105-6 Mr '15; Same. Ind Eng. 15:73-5 Ag '15; Same cond. Eng M 48:603-5 Ja '15

Safety problem of the railroads. W. B. Spaulding. Ry R 56:892-4 D 5 '14

Safety sidings. L. C. Frost. Sci Am 113:359 O 23 '15

Safety spurs for a railroad grade. H. C. Plummer. 11 Sci Am 113:179 Ag 28 '15

Showing the train number on the engine. W. E. Watts. Ry Age 59:472 S 10 '15

Suggestions for a book of rules for the maintenance of way department, embodying the safety first idea. J. T. Bowser. Ry Age 58:468-9 Mr 12 '15

Telltails for side clearance on railway track. diag Eng N 73:282 F 11 '15

What the railroads are doing to reduce death and injury. T. F. Logan. 11 Sci Am 113:144 Ag 14 '15

See also Air brakes; Railroads—Automatic stop; Railroads—Signals

Sanitation

Department of sanitation, Chicago & Northwestern Ry. Ry R 56:540-1 Ap 17 '15
 Steam disinfection for sewage on common carriers. diag Eng Rec 71:43 Ja 9 '15; Same (Sewage treatment on trains and boats). Eng M 48:917-18 Mr '15

Scrap material

See Railroads—Equipment and supplies

Securities

Bankers and equipment trust certificates. Ry Age 58:53-4 Ja 8 '15
 French railroads as security brokers. W. S. Hiatt. 11 Ry Age 59:610-12 O 1 '15
 From a western investment banker's point of view. J. H. Smith. Ry Age 58:10 Ja 1 '15
 How and why French railroads sell their securities direct to the public. W. S. Hiatt. Ry Age 59:240 Ag 0 '15
 Important decision on securities alleged to be improperly issued. Ry R 56:602-3 My 1 '15
 Possible railway securities legislation. W. L. Stoddard. Ry Age 59:946 N 19 '15
 Railroad bonds; report. Ry R 57:654-5 N 20 '15
 Railroad rates from investors' point of view. J. B. Oldham. Ry Age 58:89-92 Ja 15 '15
 Railroad securities held abroad. Ry Age 59:28-9 J1 2 '15

Shops

American railway tool foremen's 7th annual convention. Ry Age 59:193-4 J1 30 '15
 Car repair plant of the northwest system, Pennsylvania lines west Indiana Harbor, Ind. 11 plans Ry R 56:175-81 F 6 '15
 Car repair plant, Philadelphia & Reading Ry, St. Clair, Pa. 11 diags plan Ry R 57:165-3 Ag 7 '15
 Chicago & Alton shops at Bloomington, Ill. 11 plan Ry Age 58:49-51 Ja 8 '15
 Conservation of material in the railroad repair shop. E. Cordeal. Eng M 48:827-82 Mr 15 '15
 Cost accounting in the railroad repair shop. E. Cordeal. Eng M 49:211-17 My '15
 Design and operation of the new shop for building steel freight and passenger cars of the Canadian Pacific Ry., at Montreal. L. C. Ord. 11 diags plan Eng & Contr 42:406-11 O 28 '14

Railroads—Shops—Continued

- Expert in the railroad repair shop. E. Cordeal. Eng M 49:351-6 Je '15
- Illinois Central tool system; standardization and distribution include a central tool room with an accurate cost system. O. D. Kinsey. Il Ry Age (Mech ed) 89:861-4 Jl '15
- Improvements at the Englewood locomotive terminal and car repair plant. L. S. & M. S. Ry., Chicago. Il diags plans Ry R 55:679-83 D 5 '14
- International railroad master blacksmiths' association 23d annual convention. Il Ry Age 59:387-9 Ag 27 '15
- International railroad master blacksmiths' convention. Ry Age (Mech ed) 89:471-81 S 3 '15
- Jersey Central freight car repair shops. Il diags plan Ry Age (Mech ed) 89:62-6 F '15
- Joint car repair shops at large terminals. F. C. Schultz. Ry Age (Mech ed) 89:30 Ja '15
- Keeping a line on daily expense. A. J. Gibney. Ry R 57:468-70 O 9 '15
- New Bessemer & Lake Erie blacksmith shop. Il plan Ry Age 58:477-8 Mr 12 '15
- New engine terminal for the O. W. R. R. & N. co., Spokane, Wash. Il plans Ry R 57:586-9 N 6 '15
- Norfolk & Western frog and switch shop at Roanoke, Va. Il Ry Age 58:465-7 Mr 12 '15
- Quadruple tool for planing shoes and wedges. E. A. Murray. Il diags Ry Age (Mech ed) 89:584 N '15
- Railway repair shop organization. H. Gardner. Ry Age (Mech ed) 89:536-8 O '15
- Railway tool foremen's association; reports on special jigs, safety pneumatic tools, grinding and standardization of reamers. Il diags Ry Age (Mech ed) 89:409-16 Ag '15
- Reclaiming bolts with battered threads. J. P. Nolan. Il Ry Age (Mech ed) 89:39-40 Ja '15
- Relation of the paint shop to the repair yard. W. Buchanan. Ry Age (Mech ed) 89:28-9 Ja '15
- Shop efficiency. G. H. Logan. Ry R 57:464-7 O 9 '15
- Shop notes from the Soo line. B. N. Lewis. diags Ry Age (Mech ed) 89:133-5 Mr '15
- Standardization of methods in the railroad shop. E. Cordeal. Eng M 49:723-7 F '15
- Wage systems in the railroad repair shop. E. Cordeal. Eng M 49:61-7 Ap '15
- See also Car houses; Locomotive shops; Paint shops.

Signals

- Alternating current signaling. Elec Ry J 46:880 O 23 '15
- Audible signalling on railway trains in motion. W. C. Acfield. Engineer 118:803 D 26 '14
- Automatic block signal installation on the E. R. & P. Ry. C. R. Happ. Il Ry R 58:865-6 Je 26 '15
- Automatic block signals for gauntlet in Miraflores tunnel. Il Ry Age 59:327-8 Ag 20 '15
- Automatic block signals for single-track railways. Il Eng N 74:344-5 Ag 19 '15
- Automatic block signals on the Western Maryland. Il diag Ry Age 58:883-4 Ap 23 '15
- Automatic cab-signal and train-stop system. Il diags Eng N 74:614-16 S 23 '15
- Automatic cab-signal system for stopping trains. diags Eng N 73:137-8 Ja 21 '15
- Automatic signalling on railways. L. P. Lewis. Engineer 118:804 D 25 '14
- Automatic signals on Norfolk & Western electrified line. Il Ry Age 59:21-3 Jl 2 '15
- Automatic signals on the Lehigh & Hudson river. Il diag Ry Age 57:1179-80 D 25 '14
- Beam-light signals on the Pennsylvania. Ry Age 58:61 Ja 8 '15
- Block signal and interlocking extensions in 1914. Ry R 56:24-6 Ja 2 '15
- Buell's cab signal and automatic train stop. Il diag Ry Age 59:904-5 N 12 '15
- Cab signals and automatic stops at Oroville. F. F. Bostwick. Ry Age 59:998-1000 N 28 '15
- Cab signals and automatic stops on the Western Pacific. Il diags Ry Age 59:645-50 O 8 '15
- Clock-work time-lock for electric interlocking machine. Il Ry Age 59:699-700 O 15 '15
- Concrete signal towers, Delaware Lackawanna & Western R. R. Il plans Ry R 56:615-16 My 8 '15

- Development of main-line signalling on railways. W. C. Acfield. diags Inst B B J 53:763-84; Discussion. 53:784-98 Je 1 '15
- Electric interlocking at Adelaide, South Australia. C. G. Pilkington. Il diag Ry Age 59:938-8 N 18 '15
- Electric interlocking at Aulon, Tenn. diag Ry Age 58:932-3 Ap 30 '15
- Electric train stop on the Canadian Pacific. E. S. Taylor. diags Ry Age 58:100-1 Ja 15 '15
- Electrical system of cab-signalling. V. L. Raven. Il diags Engineer 119:85-6 Ja 22 '15
- Electro-mechanical interlocking. Ry Age 59:414 S 3 '15
- Electro-mechanical interlocking at Trenton. W. M. Post. Il diags Ry Age 59:419-20 S 3 '15
- Home-made wigwag signal. F. T. Vanatta. Il diag Elec Ry J 46:192 Jl 31 '15
- Improvement in the operation of the pneumatic signal device. L. N. Armstrong and H. L. Sandhas. diags Ry R 56:618-21 My 8 '15
- Institution of mechanical engineers: discussion. Engineer 118:808-10 D 25 '14
- Interlocking at North Philadelphia. W. M. Post. Il Ry Age 58:136-8 Ja 23 '15
- Manual block system without station attendants. Ry Age 57:1137-8 D 18 '14
- Mileage of American railroads block signaled. Ry Age 58:28-31 Ja 1 '15
- Operation by signals on Baltimore & Ohio. diags Elec Ry J 46:434-5 S 11 '15
- Operation of the pneumatic train signal. diag Ry Age (Mech ed) 89:296-7 Je '15
- Oroville signaling criticized. M. Tainer. Ry Age 59:796-8 O 29 '15
- Oscillating circuit-controller for railway signal circuits. Il Elec R & W Elec'n 65:1193-4 D 19 '14
- Outdoor electric substation and switch house for railway signal service. Il Ry R 56:509-10 Ap 10 '15
- Position light signals on the Pennsylvania R. R. Il Ry R 56:487-8 Ap 10 '15
- Protection of railway signal circuits against lightning disturbances. E. K. Shelton. Gen Elec R 18:1127-8 D '15
- Railway signal association convention. Elec Ry J 46:680-1 S 18 '15
- Railway signal association meeting, May 26-27. Elec Ry J 45:1023-4 My 29 '15
- Railway signal association: spring meeting. Ry R 56:408-11 Mr 20 '15
- Railway signal association 20th annual meeting. Ry Age 59:561-3 S 24 '15
- R. S. A. typical circuit plans for direct current automatic block signalling. A. G. Shaver. Ry R 56:614-15 My 8 '15
- Rural substation in railway signal work. Il Elec Ry J 45:807 Ap 24 '15
- Signal and supply departments. C. R. Ahrens; R. D. Long; A. G. Shaver. Ry R 57:120-4 Jl 24 '15
- Signalling on railway trains in motion. diags Sci Am S 80:230-1, 236-7 O 2-9 '15
- Signalling on the Chicago & Northwestern-Union Pacific system. Ry R 57:215-16 Ag 14 '15
- Simple train staff. Ry Age 58:57-8 Ja 8 '15
- Single-track automatic signals on Toronto, Hamilton & Buffalo. Il map Ry Age 58:1250-1 Je 11 '15
- Statistical report of block and interlocking signals on the railroads of the United States. Ry Age 58:1423-6 Je 13 '15
- Telltails for side clearance on railway track. diag Eng N 73:282 F 11 '15
- See also Electric railroads—Signals; Railroads—Automatic stop; Wireless telegraph for railroads

Single rail**See Suspended railways****Snow protection and removal**

- Methods of handling snow on northern roads. E. R. Lewis; H. O. Whitney; A. M. Clough. Ry Age 58:144-7 Ja 22 '15
- Operating Shay locomotives in winter. F. M. Leland. Il Eng & Min J 93:729-30 Ap 24 '15
- Snow fence of hollow clay blocks. E. G. Zorn. Il Ry R 57:694 N 27 '15

Standards

- Foreign specifications for railway material. J Fr Inst 180:615-16 N '15

Railroads—Standards—Continued

Standardisation of railway equipment on the continent. Engineer 118:580+ D 18 '14

Station agents

Index-record of station agents. Ry Age 59:702 O 15 '15

Instruction in station service on the Chicago & Alton. Ry Age 58:1051 My 21 '15

Second-quality station agents. Ry Age 59:84 JI 16 '15

Stations

Canadian Pacific terminal improvements at Vancouver. II plan Ry Age 58:614-16 Mr 19 '15

Design and construction of small stations. II plans Ry Age 58:1066-71 My 21 '15

Double-deck freight station at Pittsburgh. II plans Eng N 74:496-8 S 9 '15

Kansas City—national train indicators. II Ry Age 58:272-3 F 12 '15

Kansas City Union station lighting. II Elec W 65:1253-5 My 15 '15

Memphis—new I. C. station and track elevation. II plan Ry Age 58:179-81 Ja 29 '15

Memphis, Tenn., central station. II plans Arch & Bldg 46:476-8 D 14

Montreal station—illumination features. II Elec W 65:334-5 F 6 '15

Morristown, N. J.—new passenger station of the D. L. & W. R. R. II plans Ry R 55:735-41 D 19 '14

New freight and transfer station at Pittsburgh, Pennsylvania R. R. II Ry R 56:278-80 F 27 '15

Passenger station of the Chicago Great Western and Chicago Rock Island & Pacific railroads at Mason City, Iowa. E. G. Zorn. II plan Ry R 57:263-5 Ag 28 '15

Proposed passenger terminals at Buffalo. II plan Ry R 56:338-40 Mr 13 '15

Railway stations and architecture. Ry R 57:691-2 N 27 '15

Remodeling a frame station building. H. H. See. II plans Bldg Age 37:33-6 Je '15

St. Paul, Minn.—plans for the new Union station. diags Ry Age 58:261-3 F 12 '15

Station and office building of the Michigan Central railroad at Detroit. II Arch & Bldg 47:53-60 F '15

Train indicators at Euston, London, station. II Ry Age 58:739 Ap 2 '15

Union passenger station, Kansas City, Mo. II Arch & Bldg 47:226-9+ Je '15

See also Elevated railroads—Stations; Railroads—Buildings; Railroads—Terminals; Railroads—Ticket offices; Railroads—Train sheds

Statistics

Comparative statistics of the world's railways. Ry Age 59:805-8 O 25 '15

Comparative summary of freight cars in service; tabulation. Ry Age 59:660-2 O 8 '15

Interstate commerce commission statistics. J. L. Hopkins. Ry Age 58:922 Ap 30 '15

Railway mileage of the world. Ry Age 58:1468 Je 25 '15

Railway regulation handicapped by muddled official statistics. Ry R 56:130-1 Ja 23 '15

Railway returns for 1913. Engineer 120:371, 388 O 15-22 '15

True theory of railroad operating records. F. L. Hutchins. Ry Age 58:132-3 Ja 22 '15

See also Railroads—United States

Storehouses

New storehouse of the A. T. & S. F. Ry. at Albuquerque, N. M. A. B. Wachter. II Ry R 57:883-5 N 27 '15

Stores

See Railroads—Equipment and supplies

Switches, frogs, etc.

Essential elements in the design of switch connections. W. F. Rench. Ry Age 58:333-4 F 19 '15

Formulas for locating frogs and switches. S. S. Roberts; A. Bull. Eng N 73:84-5 Ja 14 '15

Location of frogs for an unsymmetrical Y-track. G. W. White. Eng N 74:134 JI 15 '15

Making and repairing frogs and crossings. F. A. Watts. Ry Age (Mech ed) 89:471-2 S 15 '15

New turnbuckle for switch adjustment. II diag Ry Age 58:163 Ja 22 '15

Norfolk & Western frog and switch shop at Roanoke, Va. II Ry Age 58:466-7 Mr 12 '15

Points for slip switch installation. W. F. Rench. Ry Age 59:120 JI 16 '15

Practical formula for switch lead. C. C. Wentworth. Eng N 73:734 Ap 15 '15

Remote switches moved by battery current. Ry Age 58:831 Ap 16 '15

Repairing frogs and switches on the Katy. G. P. White. Ry Age 59:970-1 N 19 '15

Standard point switch for either hand-throw or interlocking connections. N. Y. C. R. R. diags Ry R 56:860 My 15 '15

Switch inspection and test. W. F. Rench. Ry Age 57:1144 D 18 '14

See also Railroads—Crossings; Railroads—Track

Switching

Impact between freight cars in switching service. L. E. Endsley. II Ry R 57:10-18 JI 3 '15; Abstract. Elec Ry J 45:1164 Je 18 '15

Telegraph

See Telegraph; Wireless telegraph for railroads

Terminals

Alternative plans for rearranging Chicago freight terminals. plans Ry R 56:869-73 Je 26 '15

Automatic telephone system at the Kansas City terminal. II Ry R 55:768-70 D 26 '14

Bumping posts that do the work demanded. diags Eng Rec 72:474 O 16 '15

Canadian Pacific terminal improvements at Vancouver. II plan Ry Age 58:614-16 Mr 19 '15

Chicago railway terminal commission makes recommendations. Eng Rec 71:758-9 Je 12 '15

Concrete warehouses and terminal plant at New Orleans will cover 100 acres. II plan Eng Rec 71:402-3 Mr 27 '15

Delaware & Hudson terminal at Albany, N. Y. II plan Ry Age 59:58-60 JI 9 '15

Denver, Colo. railway terminal. diags plan Eng N 73:630-1 Ap 1 '15

Developments at the Grand Central terminal in New York. II plan Ry R 57:220-34 Ag 21 '15

Difficult phases of terminal operation. C. A. Pennington. Ry Age 57:1091-2 D 11 '14

Economic value of terminal improvements at Detroit. Ry Age 59:739-40 O 22 '15

Freight terminal. C. M. Himmelberger. Ry Age 59:593-4 S 24 '15

Hearing on Boston railroad terminals. Ry R 57:895-6 N 27 '15

Hot-water heating system at Grand Central terminal. W. G. Carlton. Power 42:345-6 Ag 17 '15

How the operation of one terminal was improved. G. D. Brooke. Ry Age 58:1121-4 My 28 '15

Kansas City terminal power plant. II Elec W 65:1468-70 Je 5 '15

Lackawanna passenger terminal at Buffalo. maps Eng Rec 71:334-6 Mr 13 '15

Lehigh Valley passenger and freight terminals at Buffalo. II plan Ry Age 59:158-9 JI 23 '15

Making a physical valuation of large terminals. C. L. Van Auker. Ry Age 59:127-9 JI 16 '15

New railway passenger terminal at St. Paul, Minn. plans Eng N 73:488-9 Mr 11 '15

New terminal for the Southern at Birmingham, Ala. II diags Ry Age 59:743-6 O 22 '15

New type of chart shows operation of Chicago terminal. Eng Rec 72:445-6 O 9 '15

Pittsburgh North side freight station of the P. R. R. H. M. Phelps. II plans Ry Age 59:245-6 Ag 6 '15

Railway problem of London. map Engineer 119:619-20 Je 25 '15

Railway terminal projects in Cleveland. Ry R 57:153 JI 31 '15

Reconstruction of the Jersey City terminal yards. II plan Ry Age 58:787-91 Ap 9 '15

Report of Chicago railway terminal commission. Ry Age 58:1163-4 Je 4 '15; Abstract. Eng N 74:42 JI 1 '15

St. Louis, inadequate terminal facilities. Ry Age 59:147-8 JI 23 '15

St. Paul and Oregon-Washington joint terminals in Spokane. II plans Ry Age 58:85-8 Ja 15 '15

Railroads—Terminals—Continued

- Santa Fe to solve Chicago fruit terminal problem. plan Eng Rec 71:819-20 Je 26 '15
 Spokane terminal improvement involved variety of engineering construction. II plan Eng Rec 71:224-6 F 20 '15
 Terminal facilities at San Diego. II plans Elec Ry J 45:587-8 Mr 20 '15
 Terminal improvements of the Canadian Pacific railway at Vancouver. II plan Eng N 73:340-1 F 18 '15
 Terminal improvements of the Canadian Pacific railway at Vancouver. II plans Ry R 56:380-5 Mr 20 '15
 Track layout and signals of the Jersey City passenger terminal of the Central R. R. of New Jersey. diag plan Ry R 56:847-50 My 15 '15
 Troublesome problems of terminal operation. Ry Age 58:695-6 Mr 26 '15
 Viaduct construction on the Kansas City terminal. A. R. Eitzen. II diag Ry Age 58:397-400 Mr 5 '15

See also Locomotive terminals; Railroads—Stations; Railroads—Train sheds; Railroads—Yards; Street railroads—Terminals

Ticket offices

- Centralized ticket offices for St. Louis railroads. plan Ry Age 57:1042 D 4 '14
 Ticket offices of large passenger terminals. Ry Age 58:1411-14 Je 18 '15

Tool houses

- Stoves in tool houses. Ry R 57:624 N 13 '15

Tools and implements

- Proper repair of tools for track maintenance. M. E. Carroll. II Ry Age 59:952-4 N 19 '15
 Railway mowing and weed-cutting machines. II Eng N 73:822-3 Ap 29 '15
 Tool equipment for maintenance of way forces. Ry Age 59:337-41 Ag 20 '15
 Tools for section and extra track gangs. P. J. McAndrews. Ry Age 59:338 Ag 20 '15
 Tools for the water service and bridge and building departments. E. M. Grime. Ry Age 59:340-1 Ag 20 '15
 Tools for track gangs. Ry Age 59:337-8 Ag 20 '15
 Up-keep of track tools. M. E. Carroll. II Ry R 57:341-3 S 11 '15

Track

- A. R. E. A. committee report on roadway. Ry R 56:393-4 Mr 20 '15
 Battery locomotive for track laying. II Engineer 119:585-6 Je 11 '15
 Building a permanent railway track on a pile foundation. II diag Eng N 73:200-1 F 4 '15
 Concrete eliminates soft spots in railway roadbed. J. T. Bowser. Eng Rec 72:506 O 23 '15
 Designing manganese steel track work. V. Angerer. Ry Age 59:341-2 Ag 20 '15
 Development of special steels for track work. W. C. Cushing. Ry Age 59:747-51 O 23 '15
 Digging track ditches. K. L. Van Auken. II Ry Age 59:355-6 Ag 20 '15
 Ditching and cleaning track. J. Snyder. Ry R 57:650-1 N 20 '15
 Draining embankments in Missouri. II Ry Age 58:1438-9 Je 18 '15
 Economy in the use of track material. J. T. Bowser. Ry R 57:239 Ag 21 '15
 Economy in track work and its relation to rolling stock. J. W. Powers. Ry Age 58:479 Mr 12 '15
 Economy methods in track work. W. C. Nisbet. Ry Age 58:1433-4 Je 18 '15
 Flangeway guards and frog guard-rails. diag Eng N 73:1031 My 27 '15
 General makeup of track for heavy traffic. Ry R 57:406-9 S 25 '15
 Important elements in the maintenance of track. W. F. Rench. Ry Age 58:1439-40 Je 18 '15
 Inclination of the rail in economic railroad practice. J. Lundie. Ry Age 59:335-6 Ag 20 '15
 Laying rail on a busy line. W. F. Rench. Ry Age 58:1083 My 21 '15
 Laying rail on the Lehigh valley. G. L. Moore. Ry Age 58:1084-5 My 21 '15
 Laying rail with the help of locomotive cranes. II Ry Age 59:353-4 Ag 20 '15

- Lighting plant for tracklaying. Friesha Upington Kalkfontein Ry. N. K. Prettejohn. II Ry R 57:515-16 O 23 '15
 Magnolia cut-off improvement on the Baltimore and Ohio railroad. A. W. Thompson. II maps Eng Soc W Pa 80:823-7 D '14
 Manganese steel track-work specifications. Elec Ry J 45:1118 Je 13 '15
 Measuring stresses in railway roadbeds. diag Eng N 73:743 Ap 15 '15
 159-pound girder rail for Philadelphia streets. diag Eng Rec 72:254 Ag 23 '15
 Organization for track maintenance from a committee report to the Roadmasters' and maintenance of way association. Ry R 56:221-4 F 18 '15
 Organization of section forces and methods for maintaining and policing track. Ry Age 59:517-22 S 17 '15
 Permanent track maintenance force on the Long Island R. Ry Age 59:474-5 Mr 11 '15
 Pneumatic tie tamper. II Ry Age 58:473-4 Mr 12 '15
 Promoting the growth of vegetation on the slopes. W. F. Rench. Ry Age 58:471-2 Mr 12 '15
 Proper repair of tools for track maintenance. M. E. Carroll. II Ry Age 59:952-4 N 19 '15
 Proposed standard specification for quenched carbon steel track bolts. Ry Age 59:62-3 J1 9 '15; Same. Iron Tr R 57:43-4 J1 1 '15
 Putting in service a new line with dense traffic. W. F. Rench. Ry Age 59:531 S 17 '15
 Rail laying. H. G. Olmstead. Ry Age 58:462-3 Mr 12 '15
 Rail laying on lines of moderate traffic. E. R. Lewis. Ry Age 58:1083-4 My 21 '15
 Railroad tracks as conductors for telephonic communication. II Sci Am 113:363-4 O 23 '15
 Rapid improvement of a section. K. L. Van Auken. Ry Age 59:963-4 N 19 '15
 Recent important developments in ballast practice. Ry Age 58:1436-8 Je 18 '15
 Renewing bridge ties on the Lehigh Valley with a locomotive crane. II Ry Age 59:526 S 17 '15
 Results gained with a ballast dresser. II Ry Age 59:529-30 S 17 '15
 Roadmasters' and maintenance of way association 33d annual convention. Ry R 57:324-6 S 11 '15
 Smoothing a railway subgrade to insure good drainage. Eng N 73:498-9 Mr 11 '15
 Special railway track for Philadelphia streets. diag Eng N 74:929 N 11 '15
 Standard track construction on the Great Eastern railway of England. W. A. D. Short. diag Ry Age 59:130 J1 16 '15
 Steady employment for section men, on the Long Island R. R. C. King. Ry R 56:539-40 Ap 17 '15
 Stresses in track. Ry R 56:412 Mr 20 '15
 Suggested organization for track maintenance. G. C. Crites. Ry Age 57:1148 D 18 '14
 Tamping track with air power. II Eng N 72:1219 D 17 '14
 Tie-plate with inclined face. diag Eng N 74:987 N 18 '15
 Tools for section and extra track gangs. P. J. McAndrews. Ry Age 59:338 Ag 20 '15
 Tools for track gangs. Ry Age 59:337-8 Ag 20 '15
 Track and roadbed. G. H. Pegram. Elec Ry J 46:624 S 25 '15
 Track force for renewing rails. Eng N 74:752-3 O 14 '15
 Track labor problem. E. T. Howson. Ry Age 59:522-4 S 17 '15
 Track maintenance. K. L. Van Auken. Ry R 57:526-9, 660-8 O 23, N 20 '15
 Transverse fissures the result of rail galling. P. H. Dudley. II Ry Age 59:1001-4 N 26 '15
 Up-keep of track tools. M. E. Carroll. II Ry R 57:341-3 S 11 '15
 Vaughan track indicator. II Ry Age 59:970 N 19 '15

See also Ballast; Guard rails; Rail fastenings; Railroad tie plates; Railroad ties; Railroads—Clearance; Railroads—Construction; Railroads—Crossings; Railroads—Curves and turnouts; Railroads—Gages; Railroads—Grades; Railroads—Switches; Rails; Spikes (railroad)

Railroads—Continued

Track depression

- Elimination of the Tower Grove crossings, St. Louis, Mo. S. L. Wonsom, *il* diags plans Assn Eng Soc J 56:95-115 O '15; Same cond. Ry Age 58:799-802 O 29 '15; Same cond. Eng Rec 72:627-9 N 20 '15
- Track depression at Mattoon; Illinois Central R. R. *il* diag plan Eng N 74:110-12 J1 '15
- Track depression at Minneapolis. diags Eng N 73:514-17 Mr 18 '15
- Track depression work of the C. M. & St. P. Ry. at Minneapolis. *il* Ry R 57:69-72 J1 17 '15

Track elevation

- Chicago track elevation; Rock Island lines. *il* diags Eng N 73:679-5 Ap 8 '15
- Concreting trains for track-elevation work. *il* Eng N 74:315-17 Ag 12 '15
- Factors in grade separation. Eng N 73:422-3 Mr 4 '15
- Grade crossing elimination in North Toronto, Ontario. *il* diag plan Ry Age 59:555-8 S 24 '15
- Heavy plate-girders in track-elevation work. *il* Eng N 73:1036-7 My 27 '15
- New I. C. station and track elevation at Memphis. *il* plan Ry Age 58:179-81 Ja 29 '15
- Pennsylvania track elevation through Wilkesburg, Pa. *il* plans Ry Age 58:64-8 O 8 '15
- Rock Island track elevation work at Chicago. *il* diags Ry Age 58:690-4 Mr 26 '15
- Temporary timber walls for track elevation. *il* Eng Rec 71:616 My 22 '15
- Three-level railway crossing at Chicago. *il* diags plan Eng N 73:708-10 Ap 15 '15
- Track elevation at Lynn, Mass. C. B. Breed. *il* diags plans Eng N 74:533-7 S 16 '15
- Track elevation on the Nickel Plate railroad at Chicago. *il* diag map Eng N 74:888-91 N 4 '15
- Track elevation work of the Chicago & Western Indiana R. R., in Chicago. *il* plan Ry R 57:551-3 N 20 '15

See also Elevated railroads

Track inspection

- Conducting track inspection on the Grand Trunk. *il* Ry Age 57:1145-7 D 18 '14
- Development of P. L. R. track inspection system. J. T. Richards. *il* Ry Age 58:153-6 Ja 22 '15
- Methods of conducting annual track inspections. Ry Age 58:325-9 F 19 '15

Traffic

- Effects of the Panama canal on railway traffic. Ry Age 57:1111-12 D 18 '14
- Transportation in Chicago during a traction strike. *il* Ry Age 58:1469-74 Je 25 '15

Train load

- Early tonnage studies. Ry Age 59:973 N 19 '15
- Scientific train loading; tonnage rating. O. S. Beyer, jr. Ry Age 59:607-11 S 17 '15; Same. Ry Age (Mech ed) 89:502-5 O '15; Same abr. Ry R 57:594-8 N 6 '15

Train sheds

- English railway trainshed; Great Western Ry. station in Birmingham. *il* diags plan Eng N 72:1112-14 D 3 '14
- Unit-built concrete umbrella sheds, Los Angeles, California. R. L. Newman. *il* diags Concrete Cem 7:20-2 J1 '15

Train speed

- Premiums for freight train speed. Ry Age 58:977-8 My 7 '15

Trains

- Cost of stopping and starting trains. F. W. Green. Ry R 56:655-7 My 15 '15
- Cost of train limit legislation. Ry Age 58:979-80 My 7 '15
- Handling of local or way-freight trains. R. R. Farmer. Ry Age 57:1117 D 18 '14
- Limiting length of trains by law. M. W. Potter. Ry Age 58:268 F 12 '15
- Limiting the length of trains. Ry Age 58:392 Mr 5 '15
- Local freight train. F. H. Garner. Ry Age 59:394 Ag 27 '15

- Maximums and minimums in train operation. A. Price. Ry R 56:286-9 F 27 '15; Same. Ry Age 58:401-3 Mr 5 '15
- Relation between the number of trains and passing points. F. M. La Bach. Ry Age 59:197-8 J1 30 '15
- Safety and short trains. M. A. Dow. Ry Age 58:1006-8 My 14 '15
- Standard code on the Buffalo, Rochester & Pittsburgh. Ry Age 58:619-20 Mr 19 '15
- See also* Hospital trains; Railroads—Work trains

Bibliography

- Minimum train crews and maximum length of trains legislation in the United States. Special Libraries 6:25-39 F '15

Trespassing

- Enforcing the laws against trespassing. Ry Age 58:202 Ja 29 '15
- Railroad and the hobo. E. W. Camp. Ry R 57:396-7 S 25 '15; Same cond. Ry Age 59:460 S 10 '15
- Repressing trespassers on the New Haven. Ry Age 59:696 O 15 '15
- While other accidents decline trespassing accidents still increase. Ry Age 59:163 S 10 '15

Valuation

- Accommodations de luxe for federal valuation engineers. plan Eng Rec 70:696-8 D 26 '14
- Actual railroad contingencies and what they cost. Eng Rec 71:774 Je 19 '15
- Appraisal of the Péré Marquette lines in Michigan; abstract of a report to the railroad commission. M. E. Cooley. *il* Ry Age 58:376-7 F 26 '15
- Appraisal report of Péré Marquette railroad fills ten large boxes. *il* Eng Rec 71:300-2 F 13 '15
- Billion dollar confiscation. M. W. Gaines. Ry Age 58:1150-2 Jo 4 '15
- Calculating cross section areas on railroad valuation work. F. T. Morse. Ry Age 59:29 J1 2 '15
- Chicago & Northwestern Ry. valuation work. Eng N 74:813-5 O 28 '15
- Commerce commission hears railroads on valuation. Eng Rec 72:161-2 O 9 '15
- Conference on federal valuation. Elec Ry J 45:1031 My 29 '15
- Considerations in right of way valuation. H. P. Gillette. Ry Age 58:1483-4 Je 25 '15; Same. Eng & Contr 43:572-3 Je 30 '15
- Cost of valuation. J. MacDonald. Elec W 65:689 Mr 6 '15
- Cost of valuation to the New York New Haven & Hartford R. R. Ry *il* 57:90 J1 17 '15
- Depreciation and confiscation. A. C. Humphreys. Ry Age 59:311-12 Ag 20 '15
- Developments in connection with federal valuation. Ry *il* 57:933 N 13 '15
- Developments in railway valuation. Ry R 56:653 My 15 '15
- Elements of railroad value that might be overlooked. Eng Rec 71:523-4 Ap 21 '15
- Federal railway-valuation work. G. H. Burgess. Eng N 74:12-14 J1 1 '15
- Federal valuation of joint facilities. R. J. McCarty. Ry Age 58:699 Mr 26 '15
- Federal valuation of the Boston and Maine railroad. F. C. Shepherd. Boston Soc C E J 2:211-326 O '15; Same abr. Eng Rec 72:538-41 O 30 '15; Same abr. Ry *il* 57:665-7 N 20 '15
- Federal valuation of the railroads in the United States. Ry R 57:461, 470-2, 485-7 O 9-16 '15
- Form proposed for federal valuation report. D. F. Jurgensen. Eng Rec 72:184-5 O 16 '15
- Fundamental problems involved in railway valuation. Ry Age 58:1146-50 Je 4 '15
- How the federal valuation of the Boston & Maine railroad is being done. F. C. Shepherd. Eng Rec 72:538-41 O 30 '15
- Instructions for roadway and track men on federal valuation; abstract of second tentative draft issued by Interstate commerce commission. Eng Rec 70:638-40 D 12 '14; Ry Age 58:62-4 Ja 8 '15
- Interstate commerce commission hearing on valuation. Ry Age 59:651-3 O 8 '15
- Land reproduction cost figured by a definite method. H. V. Hayes. Eng Rec 72:626 N 20 '15

Railroads—Valuation—Continued

- Making a physical valuation of large terminals. C. L. Van Auken. Ry Age 59:127-9 JI 16 '15
- Mileage of government valuation inventory tabulated. Eng Rec 72:601 N 13 '15
- Practical limit of detail in the federal valuation. Ry Age 58:44 Ja 8 '15
- Preparing for the federal valuation of the railways. Ry Age 58:1107-9 My 28 '15
- Progress of federal railroad evaluation. Eng Rec 71:40 Ja 9 '15
- Progress of federal valuation. Ry R 56:518-19 Ap 17 '15; Eng Rec 71:485-8 Ap 17 '15
- Railroad and public officials discuss federal valuation in three-day conference. Eng Rec 71:728 Je 5 '15
- Railway-valuation office index and file system. H. J. Saunders. Eng N 74:334-6 N 4 '15
- Recent progress in the federal valuation work. II diagrs Ry Age 59:569-71 S 24 '15
- Reproduction basis of valuation criticised. J. M. Esulman. Eng Rec 73:625-6 N 20 '15
- Right of way valuation. Ry R 56:253-4 F 20 '15
- Suggested form of inventory for valuation of common carrier property. D. F. Jurgensen. Assn Eng Soc J 55:129-38 O '15
- Tangled theories of railway valuation. Eng & Contr 43:507 Je 30 '15
- Valuation circulars. Ry Age 58:443-4 Mr 12 '15
- Valuation conference in Washington, March 23. Eng Rec 71:324-5 Mr 13 '15
- Valuation methods on the Big Four. Ry Age 59:701-2 O 15 '15
- Valuation of railway land. W. A. Cokeley. Ry Age 59:727 O 22 '15
- Valuation of railways. Ry Age 57:1110 D 18 '14
- Wash borings aid in railroad valuation work. II Eng Rec 71:716 Je 10 '15
- What shall be done regarding the valuation? Ry Age 58:174-5 Ja 29 '15
- When is land used for common carrier purposes? Eng Rec 71:424 Ap 3 '15
- Why the valuation should not be discontinued. C. A. Prouty. Ry Age 58:7-8 Ja 1 '15

Water supply

- Bacteriological standard for drinking water on common carriers. Eng Rec 70:617-18 D 6 '14; Eng N 72:1203 D 17 '14; Munic J 37:924 D 24 '14; Eng & Contr 43:77 Ja 27 '15; Am Water Works Assn J 2:61-73 Mr '15
- Cool drinking water for passengers on Indian railways. diagrs Ry R 57:372-3 S 18 '15
- Examination of drinking water on railway trains. E. Barlow. Am Water Works Assn J 2:74-82 Mr '15
- Railway roadside water tanks for locomotive supply; with comparative costs of wood and steel structures. diagrs Ry Age 59:955-8 N 10 '15; Abstract. Ry R 57:517-18 O 22 '15
- Reinforced concrete for railway water tanks. J. T. Bowser. Eng Rec 71:381-2 Ja 16 '15
- Treatment of water for locomotive use. W. A. Fownall. Am Water Works Assn J 2:434-41 Je '15; Same. Ry R 56:470-2 Ap 3 '15
- Water service tests. P. M. La Bach. Ry Age 59:536 S 17 '15
- Water waste. C. R. Knowles. II Ry Age 59:756-8 O 23 '15

See also Water tanks

Work trains

- Making records with loading machines. F. N. Loughnan. II Ry Age 58:1443 Je 18 '15

Yards

- Chicago freight interchange yard. II plans Eng N 73:1153-6 Je 17 '15
- Combination through classification and terminal yard. W. C. Copley. Ry Age 58:51-2 Ja 8 '15
- Co-operation in yard operation. H. H. Larson. Ry Age 59:89-90, JI 16 '15
- Finley yard of the Southern railway at North Birmingham, Ala. II plans Ry R 57:355-60 S 18 '15
- Freight terminal car checking system. I. T. Tyson. Ry Age 58:748-9 Ap 2 '15
- Interchange problem in yard operation. E. C. Tucker. Ry Age 58:1474 Je 25 '15
- Measurement of efficiency in yard operation. J. W. Roberts. Ry Age 58:1246-7 Je 11 '15
- New type of chart shows operation of Chicago terminal. Eng Rec 72:445-6 O 9 '15

- Operating the Milwaukee (Wis.) terminals of the St. Paul. W. B. Hinrichs. Ry Age 57:1060-1 D 4 '14
- Operation of large yards. A. M. Umshler. Ry R 55:750-3 D 19 '14
- Personality and experience. R: Brooker. Ry Age 59:204 JI 30 '15
- Practical problems of terminal operation. Ry Age 58:240-1 F 6 '15
- Proposed gantry crane for car repair yards. W. E. Johnston. plans Ry Age (Mech ed) 59:304 Je '15
- Qualifications of a terminal superintendent. S. W. Roberts. Ry Age 59:434-5 S 3 '15
- Railway classification yard lighting; with discussion. D. P. Morrison. II plans Eng Soc W 12a 30:641-65 O '14
- Rolling resistance of cars over switches and frogs. C. L. Eddy. Ry Age 58:796-8 Ap 9 '15
- Terminal proposition. R. M. Baker. Ry Age 59:191-2 JI 30 '15
- Troublesome problems of terminal operation. Ry Age 58:695-6 Mr 26 '15

See also Railroads—Switching

Alaska

- Alaska railroad; route and cost. Eng Rec 71:479 Ap 17 '15
- Alaskan government railroad. map Ry Age 59:230 Ag 8 '15
- Alaskan government railway. map Ry Age 58:896 Ap 23 '15
- Alaskan railroad surveys. D. L. Reaburn. II Eng N 73:104-6 Ja 21 '15
- Government railway of Alaska. map Eng & Contr 43:sup25 Ap 14 '15
- Government's Alaskan railway. II map Ry R 57:393-6 S 25 '15
- Progress on the Alaska railway surveys. Ry Age 58:32 Ja 1 '15
- Progress on the Alaskan railways. II Eng N 74:43-4 JI 1 '15
- Route of the Government Alaskan railroad. map Eng & Min J 99:705-6 Ap 17 '15
- Seward-Sustna route chosen for Alaska railroad. map Eng Rec 71:482-3 Ap 17 '15
- U. S. government's Alaskan railway. map Ry R 56:528-31 Ap 17 '15

Australia

- Proposed transcontinental railroads of Australia. W. D. Hornaday. map Ry Age 58:782 Ap 9 '15

British Columbia

- Comparison of the old and new lines of the Canadian Pacific at Rogers Pass. B. C. J. G. Sullivan. Ry Age 58:194-5 Ja 29 '15

Burma

- Southern Shan states railway. II map Engineer 119:502-3 My 21 '15

Canada

- Canadian Northern Ry. opened to the Pacific coast. II map Eng N 74:1098-9 D 2 '15
- Grand Trunk Pacific railway. map Eng N 74:245 Ag 5 '15
- Operating results of Canadian railways in 1914. J. L. Payne. Ry Age 58:987-9 Mr 26 '15
- Report on Canadian railways. Ry R 57:365 S 18 '15

See also Railroads and state—Canada; Van Buren Bridge route

China

- American engineer in China. W. B. Parsons. II Jr Fr Inst 179:390-406 Ap '15; Abstract. Eng M 49:430-4 Je '15
- Railways in China. II map Engineer 117:443-4, 601-2, 664-6, 811-12, 666-8, 118-6-7, 85-6, 154-5, 453-4; 119:181-2, 197, 347-8; 120:115-16 Ap 24, My 8, 22, Je 6, 19, JI 3, 24, Ag 7, N 13 '14, F 6, 26, Ap 8, JI 30 '15
- Status of Chinese railways. C. D. Jameson. Ry Age 59:602 O 1 '15

England

- Railway problem of London. map Engineer 119:819-20 Je 25 '15

Europe

- Foreign rail, wheel and axle specifications. Iron Age 96:52-4 JI 1 '15

Railroads—Europe—Continued.

Transportation in Europe. A. Stuckl. Ry Age 59:194-7 J1 30 '15

France

Efficiency of French women as railway workers. W. S. Hiatt. *Il Ry Age* 59:943-5 N 19 '15
 France saved by her railroad men. W. S. Hiatt. *Ry Age* 58:1047-8 My 21 '15
 French passenger service. *Ry Age* 59:798 O 29 '15
 French railroad excursions in war time. W. S. Hiatt. *Ry Age* 59:468-9 S 10 '15
 French railroads as security brokers. W. S. Hiatt. *Il Ry Age* 59:610-12 O 1 '15
 French railway accidents in war-time. W. S. Hiatt. *Ry Age* 59:1015-16 N 26 '15
 French railways in war time. *Ry Age* 58:1422-3 Je 18 '15
 How a destroyed French railroad helps its employees. W. S. Hiatt. *Ry Age* 59:386 Ag 27 '15
 How and why French railroads sell their securities direct to the public. W. S. Hiatt. *Ry Age* 59:240 Ag 6 '15

Germany

Achievements of the state railway lines of Germany. W. M. Acworth. *Ry Age* 59:725 O 22 '15
 German railways and the war. *Engineer* 119:186 F 19 '15; Same. *Sci Am S* 79:254 Ap 17 '15
 Germany's strategic railways. V. Cambon. maps *Eng M* 49:93-6 Ap '15
 Great achievements of German state railroad lines. F. W. Wiler. *Ry Age* 59:428-30 S 8 '15; Same. *Sci Am S* 80:218-19 O 2 '15

Great Britain

Annual report of the railways of the United Kingdom. *Ry Age* 59:690 O 15 '15
 English railway men's war bonus. *Ry Age* 59:899 N 12 '15
 Necessaries of life and British railways. *Engineer* 119:186 F 19 '15
 Number and types of locomotives on British railways. *Engineer* 120:108-9 J1 30 '15
 Railway year. *Engineer* 119:274-5, 297, 325-6 Mr 19-Ap 2 '15
 Statistics of English railways in war time. J. H. Parmelee. *Ry Age* 58:1241 Je 11 '15
 War bonus for English railwaymen. *Ry Age* 58:447 Mr 12 '15
 War performance of British railways. *Ry R* 57:452 O 9 '15

See also Railroads and state—Great Britain

Hawaiian Islands

Rapid growth of Hawaiian railway. *Ry R* 57:73-4 J1 17 '15

India

British-built hopper cars for the Bengal-Nagpur Ry. F. C. Coleman. *Il Ry R* 57:432-3 O 2 '15
 British India. U S Sp Cons Rep 72:73-80 '15
 Status of Indian railways. V. Bayley. *Ry Age* 59:600-2 O 1 '15

Italy

Italian railways. L. Luiggi. *Ry Age* 59:599-600 O 1 '15

Mexico

Mexican railway; 1873 and 1915. W. R. Eastman; W. T. Ingram. *Il map Eng N* 74:1016-18 N 25 '15

Nevada

Two desert railway lines merged. C. A. Byers. map *Ry R* 55:743 D 19 '14

New England

New England and the New Haven road. H. Elliott. *Ry Age* 58:381-2 Ap 23 '15
 New England railroad situation. *Ry Age* 58:729-31 Ap 2 '15
 New England railroads in 1845. map *Ry Age* 59:471 S 10 '15
 Situation in New England. *Ry Age* 58:176-7 Ja 29 '15

New South Wales

Deficit for government railways despite rate increases. *Ry R* 57:536-7 O 28 '15

New Zealand

New Zealand railways. *Engineer* 118:563 D 11 '14

Palestine

Railway lines of Syria and Palestine. L. R. Freeman. *Il map Ry Age* 59:199-203 J1 30 '15

Panama

Railway construction in republic of Panama. R. W. Hebard. *Eng & Contr* 43:sup29-30 My 19 '15

Russia

Freight equipment cars for the Russian government. *Il diag Ry R* 57:419-22 O 2 '15
 General locomotive. *Sci Am* 112:212 Mr 6 '15
 Private railways excel in Russia. *Ry R* 55:684-5 D 5 '14
 Suggestions regarding the determination of the properties of steel; Russian railway tests. A. N. Mitinsky. *Am Inst Min E* Bul 104:1697-1705 Ag '15; Abstract. *Iron Age* 96:462-3 Ag 28 '15; Same cond. (Proportional limit is prime factor) *Iron Tr R* 57:1184-6 D 18 '15

Siberia

Construction work on the Amur (Siberian) railway. W. A. D. Short. *Il Ry Age* 59:971-2 N 19 '15

South America

Transandine railways of Chile and Argentina. *Ry R* 56:324 Mr 6 '15

Switzerland

Furka railway; a new Alpine railway from the Rhone to the Rhine. A. Gradenwitz. *Il Sci Am S* 79:344-5 My 29 '15
 Opening of the Mont d'Or tunnel. *Il map Engineer* 119:505-6, 508 My 21 '15
 Railway engineering work in Switzerland. *Engineer* 119:397 Ap 23 '15

Syria

Railway lines of Syria and Palestine. L. R. Freeman. *Il map Ry Age* 59:199-203 J1 30 '15

Turkey

Railway tunnel construction in Turkey. *Ry R* 57:546-7 O 30 '15

United States

American engineering in 1914. *Engineer* 119:164-5 F 12 '15
 Commerce board presents steam-road statistics. *Eng Rec* 71:453-4 Ap 10 '15
 Construction and improvements for 1915. *Ry R* 56:30-3, 55 Ja 2-9 '15
 Disintegration of the Gould system. *Ry Age* 58:728-9 Ap 2 '15
 Rail sections as one element in steam and electric traction. P. H. Dudley. *diag Gen Elec R* 17:1036-46 N '14; Same. *Sci Am S* 78:362-3, 370-1 D 5-12 '14
 Railroad statistics to June 30, 1914. *Ry Age* 58:795-6 Ap 9 '15
 Railroads as a factor in our national life. H. Elliott. *Ry Age* 59:96-7 J1 16 '15
 Railway construction in 1914. *Ry Age* 58:3 Ja 1 '15
 Railway construction in 1914. *Ry R* 56:27-30 Ja 2 '15
 Railway construction statistics for 1914. *Ry Age* 58:23-7 Ja 1 '15
 Railway preparedness. O. Bates. *Ry R* 57:82-3 J1 17 '15
 Railway situation from different viewpoints. *Ry Age* 58:7-14 Ja 1 '15
 Railways and the California expositions. *Il Ry Age* 59:461-4 S 10 '15
 Rivers and railroads in the United States. W. W. Harts. *Ry Age* 58:230-1 F 5 '15; Discussion. F. Lavis. *Ry R* 56:860-2 My 15 '15; Same cond. *Ry Age* 58:975-8 My 7 '15
 Statistics of steam railways in the United States for the year ended June 30, 1914. *Ry R* 56:503-4 Ap 10 '15
 Statistics of steam railways; Interstate commerce commission gives comparative figures for the years 1913 and 1914. *Elec Ry J* 45:755 Ap 17 '15
 Talk optimism, act optimism! *Ry R* 55:772-4 D 26 '14

Railroads—United States—Continued

Trend of railway affairs in two eight-year periods. Ry Age 59:85-6 J1 16 '15
28th annual report of the Interstate commerce commission. Ry R 56:159-64 Ja 30 '15
War capacity of United States railways. R. Grimshaw. Sci Am 112:417- My 1 '15
See also Railroads and state—United States; also names of railroads, e. g. Great Northern railway; Van Buren bridge route

Utah

Bingham and Garfield railway—a short road in Utah with some unusual features. H. C. Goodrich. Il diag maps W Soc E J 20:512-29 Je '15
Construction of new line to reach Utah coal fields. Il map Ry Age 58:971-3 My 7 '15

Railroads, Cable. *See* Cable railroads

Railroads, Elevated. *See* Elevated railroads

Railroads, Industrial

Car-pullers for switching at industrial plants. Eng N 74:299 Ag 12 '15
Centrally controlled electric haulage systems. F. E. Woodford. Il Eng Soc W Pa 31:584-87; Discussion. 31:598-608 O '15
Clinton mine switch. Il Eng & Min J 100:309 Ag 21 '15
Maximum use of industrial railway possible at low cost. F. Tarrant. Eng Rec 71:653-4 My 22 '15
Methods and costs of building a macadam road using an industrial railway. R. P. Mason. Il Eng & Contr 43:323-3 Ap 7 '15
Operating Shay locomotives in winter. F. M. Leland. Il Eng & Min J 99:729-30 Ap 24 '15
Plans for the Hetch-Hetchy construction railroad. Eng N 74:935 N 11 '15
Portable track crossings in a contractor's yard. Il Eng N 74:817 Ag 12 '15
Proposed legislation against industrial railroads. Iron Age 95:313 F 4 '15
Road building with industrial equipment: twelve-car train hauled by a 20-horsepower dinky. Il Eng Rec 70:621 D 5 '14
Safety around surface tracks. Eng & Min J 99:279-80 F 6 '15
Safety in care and use of industrial railways. diag Foundry 43:105-6 Mr '15; Same. Ind Eng 15:73-5 Ag '15; Same cond. Eng M 48:603-5 Ja '15
Standard-gage railroad to haul road materials. Il Eng Rec 72:393 S 25 '15
Two important commerce commission decisions; industrial railways and car spotting charges. Ry Age 59:99-102 J1 16 '15
See also Locomotives, Industrial; Railroads, Portable

Railroads, Narrow gage

High capacity narrow-gauge rolling stock. Il diag Engineer 120:200-1 Ag 27 '15

Railroads, Portable

Portable railway in highway construction. Il Good Roads n s 9:180-1 My 1 '15

Railroads, Suspended. *See* Suspended railways**Railroads and state**

Extent of government ownership. Ry Age 59:8-4 J1 2 '15
Governmental regulation of railroads. O. W. Underwood. Ry R 56:568-5 Ap 24 '15
Relations of the railways and the public. L. E. Johnson. Ry Age 59:585-8 N 13 '15; Same cond. Ry R 57:625-8 N 13 '15
Ripley on railroads: finance and organization. W. M. Acworth. Ry Age 58:1144-5 Je 4 '15
Transportation in Europe; objections to government ownership in the United States. A. Stuckl. Ry R 56:8-9 Ja 2 '15
See also Electric railroads and state; Interstate commerce; Railroad law; Railroads—Rates

Canada

Bitter lesson in government railroad building; the National transcontinental railway. Eng Rec 71:478-9 Ap 17 '15

Great Britain

English experiment in railroading. Ry Age 58:379 F 26 '15
Prospects of state ownership in England. W. M. Acworth. Ry Age 58:47-8 Ja 8 '15

India

Status of Indian railways. V. Bayley. Ry Age 59:599-608 O 1 '15

United States

Address before International railway fuel association. A. M. Schoyer. Ry Age 58:1054 My 21 '15

Commission on relations between railways and waterways. Ry Age 58:1037-8 My 21 '15

Federal regulation of railroads—a suggestion; division of the country into districts. J. G. Code. Ry Age 58:1239-40 Je 11 '15

From a New York investment banker's point of view. A. B. Leach. Ry Age 58:10-12 Ja 1 '15

Government regulation of railway operation. S. O. Dunn. Ry Age 58:184-7 Ja 29 '15

How can railroad regulation be strengthened? A. J. County. Ry R 57:681-2 N 27 '15

Interstate commerce commission and its work. E. E. Clark. Ry Age 59:493-6 S 17 '15; Same. Eng & Contr 44:273-6 O 6 '15; Excerpts (Changes in the Interstate commerce law) Ry R 57:400-3 S 25 '15

Interstate commerce commission refuses to decide international jurisdiction. Ry R 56:665-6 My 15 '15

Is criticism of present railway regulation justifiable? Ry Age 57:1072-4 D 11 '14

Obsolete and conflicting railroad laws should give way to uniform Federal regulation. H. W. Wack. Am Ind 15:18-19 My '15

Progress toward wiser railway regulation. Eng N 73:450-1 Mr. 4 '15

Public regulation of wages of railway employees. F. H. Dixon. Ry Age 58:339-32 Ap 30 '15

Railroad crisis: a way out [a railroad department with a cabinet officer]. R. Morris. Ry Age 58:743-4 Ap 2 '15

Railroad nationalization; plan for regional railroad companies controlled by the government. W. W. Cook. Eng M 49:411-14 Je '15

Railroads and the public—a national problem. D. Willard. Ry Age 58:703-6 Mr 26 '15; Same cond. Ry R 56:440-2 Mr 27 '15; Same cond. Eng M 49:262-6 My '15

Railroads lose lake lines. Iron Age 95:1146 My 20 '15

Railroads must divorce lake steamship lines. map Ry R 56:682-5 My 22 '15

Railroads need protection as well as regulation. E. H. Lee. Eng Rec 71:121 Ja 23 '15

Railway problem a statesman's opportunity. F. Harrison. Ry Age 57:1075-8 D 11 '14; Same cond. Ry R 56:725-6 D 12 '14

Railway problem and its solution. S. Rea. Ry Age 57:1089-91 D 11 '14; Same. Ry R 56:720-2 D 12 '14

Railway service—is it a national problem or a local issue? F. Trumbull. Ry R 57:582-4 N 6 '15

Railway troubles due to lack of public understanding. W. G. Harding. Ry Age 57:1114-16 D 18 '14

Railways must abandon control of boat lines on the Great Lakes; abstract of the Interstate commerce commission's decision. Ry Age 58:1046-7 My 21 '15

Reasons for the unpopularity of railroads. A. M. Schoyer. Ry Age 57:1053-4 D 4 '14

Regulation is vexation. J. M. Davis. Ry R 57:298-9 S 4 '15

Southern Pacific may operate steamship lines to Balboa. Ry R 56:254-5 F 20 '15

State and the railroads. H. R. Kurrie. Ry Age 58:1252-3 Je 11 '15

State governor demands return to sanity in legislation. F. B. Willis. Ry R 56:322-3 Mr 6 '15

Unsuccessful regulation. W. G. Harding. Ry R 56:724-5 D 12 '14

What is the matter with the railroads? H. Stenger. Ry Age 59:203-4 J1 30 '15

Whither are the railways drifting? J. Kruttschnitt. Ry Age 58:7 Ja 1 '15

See also Interstate commerce commission

Railroads in war

Achievements of the state railway lines of Germany. W. M. Acworth. Ry Age 59:725 O 22 '15

Battle of the Marne. W. S. Hiatt. Ry Age 59:26-8 J1 2 '15; Abstract. Eng M 50:108-9 O '15

Railroads in war—Continued

- Country's railroads and national defense; with discussion. G. D. Snyder. Ry Age 59:1017-18 N 26 '15; Abstract. Ry R 57:685-6 N 27 '15
- France saved by her railroad men. W. S. Hiatt. Ry Age 58:1047-8 My 21 '15
- French railways in war time. Ry Age 58:1422-3 Je 18 '15
- Germany's strategic railways. V. Cambon. maps Eng M 49:93-6 Ap '15
- Great achievements of German state railroad lines. F. W. Wille. Ry Age 59:428-30 S 3 '15; Same. Sci Am S 80:218-19 O 2 '15
- Preparedness in transportation. L. Bell. Elec Ry J 48:1086 N 27 '15
- Railroad soldier at the front. W. S. Hiatt. Ry Age 59:811-12 O 29 '15
- Steam or electric railways in time of war. Engineer 118:142 F 5 '15
- See also* Hospital cars; Hospital trains; also Railroads—France

Rails

- Alloy-steel rails. Eng N 72:1111-12 D 3 '14
- Australia now producing steel rails. map Ry R 56:813-14 Je 12 '15
- Bureau of standards and railroads confer. Iron Age 95:1228-9 Je 3 '15
- Cold straightening of rails. R. W. Hunt. Ry Age 59:726 O 22 '15
- Curving rail with power bender. diags Ry Age 57:1142 D 18 '14
- Effect of finishing temperatures of rails on their physical properties and microstructure. W. R. Shimer. II Am Inst Min E Bul 99:557-85 Mr '15; Same. Iron Age 95:394-7 F 18 '15; Same. Iron Tr R 56:379-82 F 18 '15; Discussion. Am Inst Min E Bul 101:1107-11 My '15
- Effect of titanium alloys on steel. G. F. Comstock. II Iron Tr R 57:381-4 Ag 26 '15
- Electric rail grinder. II Sci Am 113:49+ JI 10 '15
- Essential qualities of good steel rails. G. Lindenthal. diags Ry R 57:83-9 JI 17 '15; Same cond. Ry Age 59:187-90 JI 30 '15; Abstract. Eng M 49:579 JI '15; Abstract. Eng Rec 72:106-8; Discussion. 72:108-9 JI 24 '15
- Experimental 125-pound rail of the Pennsylvania railroad. diags Ry R 56:431 Mr 27 '15
- Finishing temperatures and properties of rails. G. K. Burgess and others. U S Bur Stand Tech Pa 38:1-63 '14; Summaries. Am Inst Min E Bul 93:2433-7 S '14; Iron Age 94:24-5 JI 2 '14; Ry Age 56:1692-3 Je 26 '14; J Fr Inst 178:101-3 JI '14; Sci Am 111:94 Ag 8 '14; Met & Chem Eng 12:594 S '14; Iron Tr R 55:641+ O 1 '14; Iron Age 94:837 O 8 '14; Discussion. Iron Age 94:893-4 O 15 '14; Discussion. Am Inst Min E Bul 100:767-87 Ap '15
- Gages for measuring rail wear. A. R. Bailey. diags Elec Ry J 46:1042 N 20 '15
- Girder and high T-rail renewals. A. Swartz; C. L. Hawkins. Elec Ry J 46:400-1 S 4 '15
- Girder and high T-rail renewals. D. P. Falconer. Elec Ry J 46:829-31 O 16 '15
- Girder and high T-rail renewals. E. M. Haas. diags Elec Ry J 46:179-84 JI 31 '15
- Girder and high T-rail renewals. E. P. Burch. Elec Ry J 46:276 Ag 14 '15
- Girder and high T-rail renewals. G. L. Wilson; E. P. Roundey. Elec Ry J 46:592-3 S 18 '15
- Girder and high T-rail renewals. W. F. Graves; R. C. Cram. Elec Ry J 46:872-3 O 23 '15
- Good rails and sound ingots. Iron Age '95:408 F 18 '15
- Has titanium any influence on the properties of steel? F. A. J. Fitzgerald. diags Met & Chem Eng 13:28-9 Ja '15; Same cond. Iron Age 95:309 F 4 '15; Summary. Elec Ry J 45:98 Ja 9 '15
- High carbon 135-lb. rail. Iron Age 95:673 Mr 25 '15
- History of the U-rail section. diags Eng N 74:34 JI 1 '15
- Improving the quality of steel rails for heavy traffic. Eng N 73:1047 My 27 '15
- Inclination of the rail in economic railroad practice. J. Lundie. Ry Age 59:335-6 Ag 20 '15
- Influence of carbon on the properties of rails. Ry Age 57:1196 D 25 '14

- Life of way structure as affected by engineering and municipal conditions. P. N. Wilson. diags Elec Ry J 45:1212-13 Je 26 '15
- Making sound steel commercially. E. F. Kenney. II diags Iron Tr R 57:349-54+, 397-400 Ag 19-26 '15; Same (pt 2). Iron Age 95:1343-6 Je 17 '15; Discussion. H. M. Howe. Iron Tr R 57:400+ Ag 36 '15
- Manganese-steel rails. R. Hadfield. II Engineer 118:564 D 11 '14
- Mechanical elimination of seams in steel products, notably steel rails. II. W. Hunt. Iron Age 94:1334-7 D 10 '14; Same. Iron Tr R 55:1078-8 D 10 '14; Same. Sci Am S 79:100-1 F 18 '15; Same cond. Eng N 72:1228-31 D 17 '14; Same cond. Eng Rec 70:636 D 12 '14; Same cond. Ry Age 67:1055-7 D 4 '14; Same cond. Ry R 56:85-8 Ja 16 '15; Same cond. Eng M 48:755-7 F '15; Abstract. Am Soc M E J 37:152-3 Mr '15; Discussion. Iron Age 94:1337-8 D 10 '14; Discussion. Am Soc M E J 37:153-6 Mr '15
- New heavy rail section. diag Eng N 73:1042-4 My 27 '15
- New rail sections. diag Iron Age 95:870 Ap 15 '15
- New standard sections for heavy rails. diags Eng N 73:604-5 Ap 8 '15
- 9-in. grooved rail for M. C. B. flanges. diag Elec Ry J 46:369-70 Ag 23 '15
- 150-pound girder rail for Philadelphia streets. diag Eng Rec 72:254 Ag 28 '15
- Pointers on rail mill practice. E. Standford. Iron Tr R 57:307-9+ Ag 12 '15
- Poor quality of heavy steel rails. Eng N 74:34-5 JI 1 '15
- Production of rails in the United States in 1914. Ry Age 58:846 Ap 16 '15
- Rail committee presents six new rail sections. diag Eng Rec 71:393 Mr 27 '15
- Rail sections as one element in steam and electric traction. P. H. Dudley. diags Gen Elec R 17:1036-46 N '14; Same. Sci Am S 78:362-3, 370-1 D 5-12 '14
- Railroads place orders with Canadian company. Iron Tr R 56:543-3, 578-80 Mr 18 '15
- Railways and the steel companies. Ry Age 58:682 Mr 26 '15
- Relation of wheel coning to rails and tie plates. W. M. Osborn. Ry R 56:357-9 Mr 13 '15
- Signal, bonding and contact rail notes on the Northwestern Pacific. F. T. Vanatta. II Elec Ry J 46:539-41 S 18 '15
- Sound steel for rails and structural purposes. R. A. Hadfield. II J Fr Inst 179:119-40, 663-80 F, Je '15
- Sound steel ingots and rails. G. K. Burgess and R. A. Hadfield. II Am Inst Min E Bul 98:456-68 F '15; Same. Iron Age 95:346-8 F 11 '15; Same. Iron Tr R 56:369-72 F 18 '15; Same cond. Ry R 56:862-4 Mr 13 '15; Abstract. Engineer 118:494 My 14 '15; Discussion. Am Inst Min E Bul 101:1112-15 My '15; Discussion. Engineer 119:501-2 My 31 '15; Discussion. Met & Chem Eng 13:446-6 JI '15
- Special railway track for Philadelphia streets. diags Eng N 74:929 N 11 '15
- Special steels for track work. W. C. Cushing. Ry Age 59:747-51 O 22 '15; Abstracts. Eng Rec 72:317 S 11 '15; Iron Age 96:692 S 23 '15; Elec Ry J 46:878-9 O 23 '15
- Steel-rail puzzle. Eng N 74:34-5 JI 8 '15
- Suggestions regarding the determination of the properties of steel. A. N. Mittinsky. Am Inst Min E Bul 104:1697-1705 Ag '15; Abstract. Iron Age 96:482-3 Ag 26 '15; Same cond. (Proportional limit is prime factor) Iron Tr R 57:1184-6 D 16 '15; Discussion. Am Inst Min E Bul 108:2481-95 D '15
- Titanium and its effects on steel. G. F. Comstock. II J Ind & Eng Chem 7:93-4 F '15; Same cond. Sci Am S 80:827 N 20 '15
- Two heavy rail sections. diag Eng N 74:761 O 14 '15
- United States rail production. Eng & Min J 99:683 Ap 17 '15
- Vanadium steel rails of 105-lb. section. D. L. & W. R. II Ry R 56:249-51 F 20 '15; Summary. Ry Age 58:382 F 19 '15
- See also* Guard rails; Rail bonds; Rail fastenings; Rail handling; Rail joints; Railroads—Track; Spikes (railroad)

Rails—Continued

Corrugation

Corrugation of rails in electric railway service. Ry Age 58:1449 Je 18 '15
 Differential gears to eliminate rail corrugation. Il diag Elec Ry J 46:26-7 J1 3 '15
 Harder rails suggested as preventative of corrugation. S. P. W. D.A. Sellon. Elec Ry J 45:578 Mr 20 '15
 Wear and corrugation of rails. Engineer 119: 428 Ap 30 '15

Failures

Conclusions from steel rail research. Iron Age 95:622-3 Mr 18 '15
 Fissures in rails. Ry R 56:562-3 Ap 24 '15
 Rail failures and train accidents. Eng N 72: 1160-1 D 10 '14
 Rail failures show decrease since 1908. M. H. Wickhorst. Iron Tr R 57:1034 N 25 '15
 Rail injuries from sagging. F. H. Dudley. Iron Age 95:700 Mr 25 '15
 Rails and rail failures in relation to train accidents. Eng N 72:1177-8 D 10 '14
 Transverse fissures the result of rail sagging. P. H. Dudley. Il Ry Age 59:1001-4 N 26 '15
 Typical rail failures: abstract. F. A. Weymouth. Am Soc M E J 37:57 Ja '15

Lubrication

Lubricating rails on curves to reduce wear. Eng N 78:475 Mr 11 '15

Specifications

Constructive work leading to better rail specifications urgently needed. Eng Rec 72:8-10 J1 3 '15
 Foreign rail, wheel and axle specifications. Iron Age 96:52-4 J1 1 '15
 New specifications for rails; Pennsylvania R. R. system. Eng N 74:397 Ag 26 '15
 Pennsylvania's 1915 rail specifications. diag Ry Age 59:165-7 J1 23 '15; Same. Iron Tr R 57:744-6 O 14 '15
 Rail steel and rail breakages. A. W. Gibbs. Ry R 57:147-9 J1 31 '15; Same (Working out great problems). Iron Tr R 56:1333-4 Je 24 '15; Same cond. Iron Age 96:30-1 J1 1 '15; Same cond. Ry Age 59:17-19 J1 2 '15

Stresses

Experimental determination of stresses in track. C. C. Williams. Il Ry Age 59:121-2 J1 16 '15
 Internal stresses in rails found to be high. J. B. Howard. Eng N 74:855 O 28 '15
 Lateral stresses in rails on straight track. G. L. Fowler. diag Ry Age 58:1231-8 Je 11 '15
 Lateral stresses on rails in curved tracks. G. L. Fowler. Il Ry Age 59:319-22 Ag 20 '15

Testing

Comparative service tests of 100-pound sections. P. S. and A. R. A.—A rails on the Pennsylvania lines. W. C. Cushing. Ry Age 57:1078 D 11 '14
 Finishing temperatures of rails; American society for testing materials committee report. Iron Tr R 56:1307-9 Je 24 '15; Same. Ry R 57:201-3 Ag 14 '15; Same cond. Iron Age 96:19-21 J1 1 '15; Excerpts. Ry Age 59: 64-5 J1 9 '15
 Novel tests for rail steel. Elec Ry J 46:454 S 11 '15
 Test of vanadium rails. Il Elec Ry J 45:388 F 20 '15; Iron Age 95:398 F 18 '15

Rails, Guard. See Guard rails

Railway association, American. See American railway association

Railway bridge and building association, American. See American railway bridge and building association

Railway business association
 Resolutions adopted, Dec. 20, 1914. Ry Age 57:1128 D 18 '14

Railway commissioners, National association of. See National association of railway commissioners

Railway development association
 Semi-annual meeting, New York, Nov. 9-11. Ry Age 59:909-12, 938-9 N 12-19 '15

Railway electrical engineers, Association of. See Association of railway electrical engineers

Railway fire protection association
 2d annual meeting, Chicago, Oct. 5-7. Ry Age 59:691-4 O 15 '15

Railway fuel association, International. See International railway fuel association

Railway general foremen's association, International. See International railway general foremen's association

Railway mail service
 Efficiency in the post office department. Ry Age 57:1110-11 D 18 '14

Government money to go by mail at expense of railroads. Ry Age 59:389-90 Ag 27 '15; Same. Ry R 57:273-4 Ag 28 '15

Government view of government management. Ry Age 59:551-3 S 24 '15

Hupp automatic mail exchange system. Il diag Ry R 57:436-40 O 2 '15

Mail pay controversy. Ry Age 58:712 Mr 26 '15
 Merchants' association of New York condemns mail pay as unfair. Ry R 57:555-6 O 30 '15

New England roads file claims for mail pay losses. Ry Age 59:164 J1 23 '15

Western association of short line railroads. Ry Age 58:58 Ja 8 '15

See also Electric railway mail service

Railway master mechanics' association, American. See American railway master mechanics' association

Railway perishable freight association, American. See American railway perishable freight association

Railway real estate association
 1st annual meeting, Chicago, Oct. 13-14. Ry Age 59:727-9 O 22 '15Railway signal association
 Meeting, New York city, May 26-27. Elec Ry J 45:1023-4 My 29 '15

Railway signal association manual. A. G. Shaver. Ry R 56:835-7 Je 26 '15

Spring meeting, Chicago, March 15. Ry R 56: 408-11 Mr 20 '15

20th annual convention, Salt Lake City, Sept. 14-16. Elec Ry J 46:580-1 S 18 '15

20th annual convention, Salt Lake City, Sept. 14-16. Ry Age 59:561-3 S 24 '15

20th annual convention, Salt Lake City, Sept. 14-16. Ry R 57:405-6 S 25 '15

Winter meeting, Chicago, March 15. Elec Ry J 45:582-3 Mr 20 '15

Railway storekeepers' association
 12th annual convention, Chicago, May 17-20. Ry Age 58:1039-40, 1125-6 My 21-28 '15

12th annual convention, Chicago, May 17-20. Ry Age (Mech ed) 89:285-90 Je '15

12th annual convention, Chicago, May 17-20. Ry R 56:688-98 My 22 '15

Railway telegraph superintendents, Association of. See Association of railway telegraph superintendents

Railway tool foremen's association, American. See American railway tool foremen's association

Railways. See Railroads

Railways, Suspended. See Suspended railways

Rain and rainfall
 Average rainfall in the light of the New Bedford record. N. M. Stineman. Eng N 73:1213 Je 24 '15

Cincinnati rainfall averages. H. R. Crohurst. Eng N 74:783 O 21 '15

Cycles of rainfall and the new Bedford records. D. M. Wood. Eng N 72:1321-2 D 31 '14

Day's rainfall of over 15 in. in St. Petersburg, Fla. Eng N 74:428-9 Ag 26 '15

Determination of rainfall rates, Pawtucket, R. I. G. A. Carpenter. Il Eng N 74:148-9 J1 22 '15

Electricity of rain; abstract. G. C. Simpson. Elec W 66:251 J1 31 '15

Erie rainstorm and flood. Il map Eng N 74: 326-9 Ag 12 '15

Extraordinary rain in St. Louis with study of runoff. W. W. Horner. Eng N 74:742-3 O 14 '15

Havana rainfall records. F. M. Aguirre. Eng N 74:830 O 28 '15

Rain and rainfall—Continued

- Intensity of rainfall studied at Columbus, Ohio. C: Herrick. Eng N 74:878-9 O 7 '15
 Long-term rainfall records in New York state. E: H. Sargent. Eng N 74:403 Ag 28 '15
 Meteorological analysis of storm indicates similarity to hurricane of 1900. map Eng Rec 73:276-8 Ag 28 '15
 New Orleans record for succession of storms broken. map Eng Rec 73:562-3 N 6 '15
 Relative reliability of long-time rainfall observations. F. H. Millard. Eng N 73:1212 Je 24 '15
 Restricted stream channel responsible for Erie flood damage. T. H. Seelye. II Eng Rec 72:186-9 Ag 14 '15
 Run-off from sewered areas; final report of committee. bibliog II diag Boston Soc C E J 1:291-322 Je '14; Abstract. Munic J 37:73-4 Ji 16 '14
 Sewage measurement and automatic control of storm overflow at Pawtucket, R. I. G: A. Carpenter. II diag Boston Soc C E J 1:419-27 O '14

See also Rain water pipes; also New Orleans—Hurricane, 1915

Rain water pipes

- Rain water leaders. E. R. Porter. diag Dom Eng 73:230-1, 262-3 N 20-27 '15

Ramps

- Inclined walkways replace stairs and elevators in new Victor building at Camden, N. J. II plans Eng Rec 73:666-7 N 27 '15

Rand mines. See Gold mines and mining—Transvaal**Range finders**

- Getting the range: Instruments which make gun fire effective at distances up to ten miles. II Sci Am 113:220-3 Mr 6 '15
 Range-finder; how distances are measured on the battlefield. II Sci Am S 80:20 Ji 10 '15
 Range-finders, diag Sci Am S 79:23 Ja 9 '15
 Science in the war and after the war. J. A. Fleming. Sci Am S 80:338-9 N 27 '15

Range finding

- Accuracy of gun fire. H. J. Jones. Engineer 120:239-40 S 10 '15

Rapid transit

- Autos and the electric car. J: A. Beeler. Elec Ry J 46:590-2 S 18 '15
 Consideration with regard to the rapid transit problem in cities. G: F. Swain. Eng Soc W Pa 31:239-54 Ap '15

See also Electric railroads; Elevated railroads; Railroads; Street railroads; Subways

Rare earths. See Barths, Rare**Rasak**

- Logging Rasak and Lagan. T. R. Helms. II Am For 21:1060-3 N '15

Rat proofing

- Concrete a plague-eradicator in New Orleans. H. P. Letton. Eng Rec 71:325-6 Mr 13 '15

Rates

- Reasons for different rates. Power 41:383, 684-5 Mr 16, My 18 '15

See also Electric power—Rates; Gas rates; Prices; Public service corporations—Rates; Water rates

Rattan

- Rattan supply of the Philippines. J: R. Arnold. U S Bur For & Dom Com 95:1-40 '15

Ray Consolidated copper company, Ray, Arizona

- Report for 1914. Eng & Min J 99:707-8 Ap 17 '15
 Underground mining systems. L. A. Blackner. II diag Am Inst Min E Bul 102:1249-90 Je '15

Razing. See Wrecking**Reactance coils**

- Current-limiting reactors. W. H. Dann and H. H. Rudd. Power 42:244-5 Ag 17 '15

- Discussion on reactance by American Institute of electrical engineers. Am Inst E E Pro 84:1309-22 Je '15

- Fireproof current-limiting reactors. II Elec W 68:376 Ag 14 '15

- Laboratory-built reactance of large capacity. II Elec R & W Elec'n 67:944-5 N 20 '15

- Location for current-limiting reactors. Elec W 64:1159-60 D 12 '14

- Protective reactance coils. II diag Elec W 65:945-9 Ap 10 '15

Reactions, Chemical. See Chemical reaction**Reagents, Chemical.** See Chemical reagents**Real estate**

- Appraisal of city real estate. W: E. Davies. Eng & Contr 43:167-70 F 24 '15

See also Property

Real estate association, Railway. See Railway real estate association**Real estate business**

- Community stupidity; how real-estate promotion creates congestion and reduces values. plans F: L. Ackerman. Am Inst Arch J 3:193-7 My '15

- Cooperation of the real-estate developer and town-planner in land subdivision. P. A. Harsch. Am Inst Arch J 3:308-10 Ji '15

Accounting

- Real estate subdivisions. S. Walton. J Account 19:330-4 Ap '15

Real property. See Real estate**Reamers**

- Heavy duty electric reamer. II Ry Age (Mech ed) 89:199 Ap '15

- Portable pipe-reaming machine. II Power 42:123 Ji 27 '15

Rebates of duties. See Drawbacks**Receipts.** See Chemistry, Technical; Red fire**Reclamation of land**

- Construction methods and plant for diversion and drainage works for Little River drainage district in Missouri. Eng Rec 70:612-14 D 5 '14

- Cost of electric dredging for land reclamation, San Diego. Cal. L. R. W. Allison. Eng & Contr 44:296-6 Ag 4 '15

- Cost to the U. S. reclamation service of draining over-irrigated lands. Eng & Contr 43:2 Ja 6 '15

- Neponset river reclamation. W. B. Conant. II Munic J 39:254-5 Ag 19 '15

- River improvement for public health reclaims 10,000 acres of fertile land. R. W. Sherman. II map Eng Rec 71:738-9 Je 12 '15

- Simple construction reclaims 7000 acres of rich land at low cost. Pitt Meadows. B. C. H. M. Burwell. II diag map Eng Rec 72:330-1 S 11 '15

See also Drainage; Irrigation

Reclamation service (United States)

- Changed reclamation service. Eng Rec 72:125 Ji 31 '15

- Changed reclamation service again. Eng Rec 72:671-2 N 27 '15

- Electrical features of the U. S. reclamation service. F. H. Newell. Am Inst E E Pro 33:1583-98 O '14; Summary. Elec W 64:753 O 17 '14; Discussion. Am Inst E E Pro 34:675-9 Ap '15

- Multiple-arch diversion dam at Three Miles Falls. Oregon. H. D. Newell. II diag Eng N 73:1009-12 My 27 '15

- One year's work of the U. S. reclamation service. Eng Rec 70:848 D 13 '14

- Reclamation service has unique library. Eng N 74:787 O 21 '15

- Shall the irrigation settlers be given relief? Eng Rec 72:650-1 N 27 '15

- Suggested itinerary for engineers desiring to visit reclamation service projects. Eng N 73:363-4 F 13 '15

- Uncle Sam in the movies. C. J. Blanchard. II Am For 21:532-40 Ap '15

Recorders

- Coasting recorders in New York. II Elec Ry J 45:573-5 Mr 20 '15

- Electrical long distance transmitting, indicating and recording system. II diag Ind Eng 14:395-6 O '14; Colliery 85:281-2 D '14; Heat & Vent 11:57-9 D '14; Mach 21:330-1 D '14; Met & Chem Eng 12:797-8 D '14; Eng N 73:1136-7 D 8 '14; Elec R & W Elec'n 65:1100-1 D 5 '14; Power 40:916-17 D 29 '14

- Graphic recorder for the Cole pitometer. II diag Eng N 73:875 My 6 '15

Recorders—Continued

- Machine-tool performance diagnosis; lessons of the power-time characteristic and value of automatic records on analyzing productive operations. *Elec W* 65:417-18 F 13 '15
- New type of flow recorder. *Il Heat & Ven* 12: 52-3 Ag '15
- Panama-Pacific exposition. F. R. Low. *Il Power* 42:444-7 S 28 '15
- Protection and control of industrial electric power. C. P. Steinmetz. *Il Gen Elec R* 18: 982-5 O '15
- Recorder for passenger-mile earnings. *Il Elec Ry J* 45:948-9 My 15 '15
- Recording power plant operations. J. C. Smallwood. *Il diags Eng M* 49:818-86; 50:33-46, 262-75, 382-9 S-D '15
- Records of radio time signals made with a physiological recorder. C. W. Waggoner. *Il Sci Am S* 79:152 Mr 6 '15
- Speed control on dreadnought Pennsylvania. *Il Int Marine Eng* 20:200-1 My '15
- See also Carbon dioxide recorders; Temperature recorders

Records

- Card record of employees. C. E. Fairbanks. *Eng M* 48:573-5 Ja '15
- Card record of employees. S. G. Koon. *Eng M* 49:88-90 Ap '15
- Checking freight charges. P. A. Smith. *Iron Age* 95:538 Mr 4 '15
- Convenient operating reports for steam plants. *Elec W* 65:1623-6 Ja 19 '15
- Electrical repair record system; methods of National tube cot. J. F. Kelly. *Iron Tr R* 58: 1064-7 My 27 '15; Same cond. *Iron Age* 95: 1070 My 13 '15; Discussion. *Iron Tr R* 58: 1067-9 My 27 '15
- Estimate record blanks in book form. *Metal Work* 83:201 Ja 29 '15
- Export price records. H. A. Russell. *Iron Age* 96:1114-15 N 11 '15
- How to use statistics in management. F. G. Coburn. *Eng M* 49:717-23 Ag '15
- Keep record of electrical repairs. G. E. Stoltz. *Iron Tr R* 58:967-9+ My 13 '15; Same cond. (Steel mill electric motors) *Iron Age* 95:952-3 Ap 29 '15
- Log sheets at Delray station. N. G. Reinacker. *Power* 42:482-4 O 5 '15
- Method of recording and filing information concerning bids received and bidders. *Eng & Contr* 44:92 Ag 4 '15
- Model record of distribution of construction plant. *Il Eng N* 74:218-19 JI 29 '15
- Modern plating department order system. C. H. Fleischer. *Metal Ind n s* 13:151-2 Ap '15
- Office methods for the electrical contractor. *Elec R & W Elec'n* 66:550-2 Mr 20 '15
- Record forms for the electrical contractor. *Elec R & W Elec'n* 66:724-5 Ap 17 '15
- Record keeping in the power plant. S. J. H. White. *Power* 41:243-4 F 16 '15
- Recording power plant operations: the records; combining, averaging, integrating, and filing; special planimeters. J. C. Smallwood. *Il Eng M* 50:382-9 D '15
- Records for the purchasing department. H. A. Russell. *Iron Age* 96:308-9 Ag 5 '15
- Springfield water-works. *Il Eng N* 74:443-5 S 2 '15
- Systems for the engineer and contractor. T. Barwick. *Heat & Ven* 11:27-34 N; 15-21 D '14; 13:18-22 Ja '15

See also Electric railroads—Records; Foundry records; Railroads—Records; Street railroads—Records

Records, Municipal. See Municipal records

Recreation buildings

Chicago municipal pier. *Il diags Eng N* 74: 193-7 JI 29 '15

Frame building heated by warm air system. M. H. Reaser. *Il plans Metal Work* 84:400-1 S 24 '15

Recreation centers. See Social centers

Rectangular pressure vessels. H. J. Vander Eb. *Locomotive* 30:164-9 Ap '15

Rectifiers, Electric current. See Electric current rectifiers

Red Cliff, Colorado

Geology and ore deposits of Red Cliff, Colorado. A. H. Means. *Il Econ Geol* 10:1-27 Ja '15

Red fire

Good mixture for red fire. G. B. Jackson. *Sci Am* 113:291 O 2 '15

Safe red fire mixture. *Sci Am* 113:161 Ag 21 '15

Red gum

Use of native woods for interior finish. C. M. Price. *Il Brickb* 24:221-2 S '15

Reduction, Chemical

Rate of reduction of mercuric chloride by sodium formate. G. A. Linhart. *Am Chem Soc J* 37:70-6 Ja '15

Reduction of copper oxide in alcohol vapor in reducing sugar determinations and copper analysis. A. Wedderburn. *J Ind & Eng Chem* 7:610-11 JI '15

Redwood

Features of the home of redwood. J. H. Browne. *Il Bldg Age* 37:36-40 Ag '15

Use of native woods for interior finish. C. M. Price. *Il Brickb* 24:285 N '15

Reflection (light)

Air shaft illumination as studied by models. C. H. Sharp. *Illum Eng Soc* 9:598-610 no 7 '14

Diffusing media; papers and inks. *Illum Eng Soc* 10:379-87 no 5 '15

Mixed specular and diffuse reflection; with discussion. F. G. Nutting. *Illum Eng Soc* 9: 571-8 no 7 '14

Reflection from painted surfaces. L. Bell. *Elec W* 65:211-12 Ja 23 '15; Same. *Am Gas Light J* 102:91 F 8 '15; Same cond. *Ind Eng* 15: 80 Ag '15

Tests of some possible reflecting power standards. F. G. Nutting, L. A. Jones and F. A. Elliott. *Illum Eng Soc* 9:598-7 no 7 '14

Window envelopes. *Illum Eng Soc* 10:394-6 no 5 '15

Reflectors

Bowl-type metal reflectors. *Il Elec R & W Elec'n* 67:634 O 2 '15

New developments in the projection of light. L. C. Porter. *Il Illum Eng Soc* 10:338-54 no 1 '15

Parabolic asbestos reflector. *Il Elec R & W Elec'n* 67:440 S 4 '15

Prismatic-glass window reflector. *Il Elec R & W Elec'n* 67:440-1 S 4 '15

Silvered-mirror reflectors for flood lighting. *diags Elec W* 66:825 O 9 '15

See also Light projection

Reforestation. See Forest planting

Refraction

Refractometry. G. A. Shook. *Met & Chem Eng* 12:572-6, 630-5; 13:19-22 S-O '14, Ja '15

Refractometer

Refractometry. G. A. Shook. *Met & Chem Eng* 12:572-6, 630-5; 13:19-22 S-O '14, Ja '15

Refractory materials

Carborundum products, their manufacture and uses as abrasives and refractories. C. H. Hawke. *Iron Age* 96:1121 N 11 '15

Difference between English and German refractory materials. A. B. Searle. *Am Gas Light J* 103:268-9 O 25 '15

Refractories of the Rocky mountain region, and some of their products. J. C. Ballar. *Il Met & Chem Eng* 13:257-8 Ap '15

Refractory materials and the war. A. B. Searle. *Sci Am S* 79:169 Mr 13 '15

Selecting refractories for the foundry; abstracts. W. H. Kelley. *Iron Age* 94:942-3 O 22 '14; *Ind Eng* 14:469-71 D '14

Thermal conductivity of refractories. B. Dudley, jr. *Met & Chem Eng* 13:315-16 My '15

Thermal insulation of high-temperature equipment. P. A. Boeck. *diags Am Inst Min E Bul* 104:1539-50 Ag '15; Excerpts. *Iron Age* 96:353-4 Ag 12 '15; *Sci Am S* 80:815 N 13 '15; Discussion. *Am Inst Min E Bul* 108:2518-19 D '15

Zirconia, a new refractory. H. C. Meyer. *Il Met & Chem Eng* 12:791-3; 13:268-6 D '14, Ap '15

See also Fire brick; Ganister; Magnesite; Silundum

Refrigerating engineers, American society of.
See American society of refrigerating engineers

Refrigeration and refrigerating machinery

Ammonia a heat vehicle. A. Johnson. Power 41:737 My 25 '15; Same. Sci Am S 80:55 J1 24 '15

Applications of congealed brine. R. L. Shipman. Power 42:322-3 Ag 17 '15

Automatically operating refrigerating apparatus autotrigor; abstract. P. Ostertag. diag Am Soc M E J 37:479-80 Ag '15

Blast-furnace plant auxiliaries and general arrangement; dry blast. J. E. Johnson, jr. diags Met & Chem Eng 18:429-39 J1 '15

Cold-air refrigeration plant. Power 42:674 N 16 '15

Columbus refrigerating plants. II Power 43:334-6 S 7 '15

Compressor trouble due to throttled suction line. T. G. Thurston. diag Power 41:374 F 23 '15

Decomposition of ammonia and the chances of explosions. F. L. Fairbanks. Power 42:715-17 N 23 '15

Design, construction and operation of a 1000-ton ammonia compression refrigerating machine. F. L. Fairbanks. diag Am Soc M E J 37:560-1 S '15

Detecting ammonia leaks. C. E. Anderson. Power 40:851-2 D 15 '14

Detecting ammonia leaks. T. G. Thurston. Power 41:101 Ja 49 '15

Don'ts for refrigerating engineers. T. G. Thurston. Power 41:607-9 My 4 '15

Electricity in a cold-storage plant. II Elec R & W Elec'n 67:357-9 Ag 28 '15

Electricity in a wholesale grocery establishment. II Elec R & W Elec'n 67:503-6 S 18 '15

English mechanical engineers' refrigeration report. Power 40:828-9 D 8 '14

Equipment and methods in largest refrigeration system: Quincy market cold storage & warehouse co., Boston. C. H. Bromley. II Power 40:798-802, 843-4, 878-83, 914-16; 41:9-14 D 8 '14-Ja 5 '15

Experiences of refrigerating troubleman. C. E. Anderson. diags Power 42:330-1 S 7 '15

Experiences of refrigerating troubleman. T. G. Thurston. Power 42:521-2 O 12 '15

Frost 16 feet deep found under refrigerator plant. J. N. Jensen. II Eng Rec 72:297 S 4 '15

Getting capacity in the refrigerating plant. A. G. Solomon. Power 41:802-3 Je 15 '15

How electricity is used in handling seafood. II Elec W 66:450-1 Ag 28 '15

Inconspicuous losses in refrigerating plants. P. Neff. Power 41:778 Je 8 '15

Initial charge with anhydrous. H. G. Gibson. Power 42:881 N 16 '15

Large electrically operated refrigerating machine. II Elec W 66:1204-5 My 8 '15

Mechanical refrigeration in manufactures. C. E. Lucke. J Ind & Eng Chem 7:462-3 Je '15

New Morrison hotel plant, Chicago. T. Wilson. II Power 42:111-12 J1 27 '15

Oil troubles experienced in the refrigeration system. A. G. Solomon. Power 42:234-5 Ag 17 '15

Operating a refrigerating plant. T. G. Thurston. Power 42:185-6 Ag 10 '15

Operating variable temperature refrigeration system. A. L. Rice. Power 42:708-10 N 23 '15

Overhauling the refrigeration plant. F. E. Matthews. Power 42:579-80, 606-8 O 26-N 2 '15

Power requirements of ammonia compressors. W. N. McKee. Power 41:158-60 F 2 '15

Practical use of thermometers in refrigerating plants. P. Neff. Power 42:417-18 S 21 '15

Refrigerating engineers meet. Power 40:860-7 D 15 '14

Refrigeration by gas. H. M. Soper. Am Gas Light J 102:412-13 Je 28 '15

Refrigeration in France. L. Marchis. Power 42:528-9 O 12 '15

Refrigeration night, Chicago section. A. S. M. E. Power 41:489-91 Ap 6 '15

Removing scale from ammonia condensers. A. G. Solomon. Power 42:84-5 J1 20 '15

Similar features of boiler and refrigeration systems. T. G. Thurston. Power 42:437-8 S 28 '15

Standard in refrigeration. L. A. Simmons. Gen Elec R 18:1171-2 D '15

Suggestions on overhauling a refrigeration plant. T. G. Thurston. Power 41:328-9 Mr 9 '15

Survey of the refrigeration field as it exists today. H. L. Holleman. Gen Elec R 18:65-7 Ja '15

See also Ammonia compressors; Cold storage; Cooling; Ice—Manufacture; Refrigerator cars

Cost

Electrical refrigeration at 11.7 cents a day. II Elec W 65:1203 My 8 '15

Initial and operating costs of refrigeration plants. R. P. Kehoe. Power 41:710-11 My 25 '15

Laws and regulations

Massachusetts ammonia safety regulations. F. L. Fairbanks. diags Power 42:753-6 N 30 '15

New York's refrigeration ordinance. Power 42:68 J1 13 '15

Regulations governing refrigerants in New York city. Power 40:862 D 15 '14

Safety devices

Operating refrigeration plants safely. H. W. Geare. diag Power 41:307-8 Mr 2 '15

Safety in handling refrigerants. A. G. Solomon. Power 41:170-1 F 2 '15

Safety in refrigerating plants. Power 41:879-80 My 18 '15

See also Refrigeration—Laws and regulations

Testing

Air testing in the refrigeration plant. A. G. Solomon. Power 41:339-40 Je 22 '15

Performance of refrigeration plant at Lubeck, Germany. R. Stetfeld. Power 41:212-14 F 9 '15

Refrigeration in transportation

Refrigerating plant on the first American steamer to bring frozen and chilled meats from the Argentine. II diags Int Marine Eng 20:150-1 Ap '15

See also Refrigerator cars

Refrigerator cars

Baltimore & Ohio milk refrigerator car. II diags Ry Agr. (Mech ed) 58:521-3 D '14

Detroit United builds refrigerator car. C. L. Keller. II diag Elec Ry J 46:1044 N 20 '15

Refrigerators

Measurements for the household. U S Bur Stand Circ 55:50-3 '15

Refrigerator wastes and connections. J. Graham. diags Dom Eng 73:36-7 O 2 '15

Refuse, Utilization of

Fertilizer from municipal waste. J. W. Turrentine. Munic J 39:789-90 N 11 '15

Making fuel out of garbage. W. D. Hornaday. II Munic Eng 48:304-5 My '15

Refuse and refuse disposal

Akron is building sewage and garbage disposal plants. plan Eng Rec 71:63 Ja 8 '15

Analysis of Chicago refuse. Munic J 38:814-15 Mr 11 '15

Atlanta burns its garbage for 91 cents per ton. E. R. Conant. Eng Rec 72:832 O 30 '15

Disposal of garbage and refuse in Seattle. Munic Eng 48:118-19 F '15

District sanitary disposal plant. F. Spiegelburg. II Sci Am S 80:300 N 6 '15

Emergency garbage disposal in Chicago. G. B. Young. II Eng Rec 70:668-7 D 19 '14

Experiences in refuse collection and disposal with reference to odors. S. A. Greeley. Eng & Contr 42:576 D 23 '14

Garbage and refuse disposal and experiences with incineration at San Francisco. A. J. Cleary. II plan Eng N 73:301-4 F 18 '15

Garbage collection and incineration in Sewickley, Pa. E. B. Duff, jr. II Munic J 30:719-23 N 11 '15

Garbage disposal at Reading. W. C. Matthias. II diag Munic J 39:544-5 O 7 '15

Garbage-disposal propositions at San Francisco. Eng N 74:232 J1 29 '15

Refuse and refuse disposal—Continued

- Method and cost of collecting and incinerating garbage at Racine, Wis. P. H. Connolly. Eng & Contr 44:311-12 S 15 '15
- Milwaukee bureau of street sanitation. Munic J 37:888-90 D 17 '14
- Prevention of odors at city refuse disposal works. R. Hering. Eng & Contr 43:81-2 Ja 27 '15
- Recent refuse disposal practice, with list of reduction plants in the United States. W. F. Morse. Munic J 37:848-51 D 10 '14; Abstract. Eng N 73:576-6 Mr 25 '15
- Refuse collection and disposal. E. N. Stacy. II Assn Eng Soc J 54:12-34 Ja '15
- Refuse collection and disposal; information from several hundred cities concerning methods and costs. Munic J 39:722-39 N 11 '15
- Refuse disposal at Savannah. E. R. Conant. Munic J 38:186-8 F 11 '15
- Summer municipal wastes: Chicago street department makes analyses. Eng Rec 71:84-5 Ja 16 '15
- See also* Refuse collection; Refuse incinerators; Sewage; Sewage disposal; Street cleaning; Trade waste; Waste products; Waste removal; Water pollution

Reduction plants

- City and state power plants at Columbus, Ohio. T. Wilson. II Power 42:323-4 S 7 '15
- Cobwell garbage-reduction process. Eng N 72:1249 D 24 '14
- Data concerning reduction plants; tabulation. Munic J 39:734 N 11 '15
- Essential features in the design and operation of refuse disposal plants. I. S. Osborn. Eng & Contr 44:166 S 1 '15
- Garbage and rubbish disposal in Los Angeles. S. C. Simons. II plan Munic J 38:799-803 Je 10 '15
- Garbage reduction at Columbus, Ohio, 1918 and 1914. Eng N 73:1030 My 27 '15
- Garbage reduction in Columbus. II Munic J 39:846-7 D 2 '15
- Investigations on the nature and elimination of odors and dust from a garbage reduction plant. H. W. Mahr and A. C. Kruit. II diag J Ind & Eng Chem 7:778-86 S '15; Abstract. Eng N 74:547 S 16 '15
- Municipal garbage-reduction plant, Schenectady, N. Y. S. Gertz. II plan Eng N 73:820-2 Ap 29 '15
- New methods of odor elimination at garbage plants indicated by New York tests. I. S. Osborn. Eng Rec 72:16-17 J1 3 '15
- Operations of the Cleveland garbage-reduction works. Eng N 73:527 Mr 18 '15
- Recent refuse disposal practice, with list of reduction plants in the United States. W. F. Morse. Munic J 37:848-51 D 10 '14; Abstract. Eng N 73:576-6 Mr 25 '15
- Reduction of New York's garbage. II map Munic J 39:35-9 J1 8 '15
- Success of two municipal garbage-reduction plants. Eng N 73:1042 My 27 '15

Refuse collection

- Collecting ashes and garbage in Passaic, N. J. A. Reid. Munic J 38:35-6 Ja 14 '15
- Garbage and refuse collection and disposal in St. Louis, Mo. Munic Eng 48:340-1 Je '15
- Garbage collection and incineration at Norfolk, Va. W. R. Russell. II diag Munic J 38:183-5 F 11 '15
- Garbage collection and incineration in Sewickley, Pa. E. E. Duff, jr. II Munic J 39:719-22 N 11 '15
- Garbage collection in a small city. L. J. Wertheim. II Munic J 38:36-7 Ja 14 '15
- Garbage collection studies in Chicago justify continued use of horses. Eng Rec 72:52-3 J1 10 '15
- Haul of municipal refuse. L. L. Tribus. Munic J 39:190 Ag 5 '15
- Method and cost of refuse collection and disposal in Los Angeles, Cal. A. C. Hansen. Eng & Contr 44:265-8 S 29 '15
- Refuse collection and disposal. E. N. Stacy. II Assn Eng Soc J 54:12-34 Ja '15

- Refuse collection and disposal; information from several hundred cities concerning methods and costs. Munic J 39:722-39, 812-14 N 11, 25 '15; Correction. 39:846 D 2 '15
- Refuse collection in Chicago. Munic J 39:841-2 D 2 '15
- Refuse disposal in Richmond. J. W. Cloey. II Munic J 38:466-8 Ap 8 '15
- Refuse dumped from the cart to scow without scattering. II Eng Rec 72:315-16 S 11 '15
- Sanitary method of garbage collection. W. H. McLain. II Munic Eng 49:61-2 Ag '15
- Street cleaning appliances: exhibits at the New York street cleaning department exhibition. II Munic J 37:858-66 D 10 '14
- See also* Refuse receptacles

Cost

- Cost of collection and method of disposal; tabulation. Munic J 39:726-30 N 11 '15
- Costs of collecting, hauling, transferring and transporting municipal refuse. S. A. Greeley. Eng & Contr 43:376-7 O 21 '14
- Differences in cost of refuse collection. Munic J 39:845-6 D 2 '15
- Extent and cost of use of motor trucks in municipal refuse collection service. S. A. Greeley. Eng & Contr 44:286-7 O 13 '15
- New York street cleaning. II Munic J 39:842-4 D 2 '15
- Refuse incinerators**
- All-steel refuse incinerator, Roanoke, Va. J. C. Woodman. II diag Eng N 73:878-80 Ap 8 '15
- Data concerning incinerators; tabulation. Munic J 39:738-4 N 11 '15
- Design and operation features of refuse destructors. R. O. Wynne-Robert. Eng & Contr 42:501-3 N 25 '14
- Design and operation of small municipal refuse incinerator at International Falls, Minn. E. W. Kibbey. diag Eng & Contr 43:477-8 My 26 '15
- Electricity from refuse destructors; abstract. A. J. Abraham. Elec W 68:561 S 18 '15
- Garbage and refuse disposal and experiences with incineration at San Francisco. A. J. Cleary. II plan Eng N 73:301-4 F 13 '15
- Garbage and refuse incinerator at Palo Alto, Calif. N. H. McKay. plans Eng N 73:432-3 Mr 4 '15
- Garbage and rubbish incinerator recommended for Albany, N. Y. Eng N 73:565 Mr 26 '15
- Garbage collection and incineration at Norfolk, Va. W. R. Russell. II diag Munic J 38:183-5 F 11 '15
- Garbage disposal at Reading. W. C. Matthias. II diag Munic J 39:544-5 O 7 '15
- Incinerators for small towns. II Munic J 37:845-6 D 10 '14
- List of destructor installations constructed between 1906 and 1914, inclusive. Munic J 37:849 D 10 '14
- Refuse collection and disposal. E. N. Stacy. II Assn Eng Soc J 54:12-34 Ja '15
- Refuse destructor at Savannah, Ga. E. R. Conant. II Munic Eng 47:416-23 D '14; Abstract. Eng N 73:256-8 F 11 '15
- Refuse incinerator at Petersburg. II plan Munic J 38:311-13 Mr 11 '15
- Refuse incinerator at Portland, Ore. W. G. Heiber. Munic J 39:774-5 N 18 '15
- Refuse incinerator, Florence, S. C. M. Maffitt. II diag Eng N 73:1166-7 Je 17 '15
- Refuse incinerator guarantees are too strict for practical fulfillment. Eng Rec 71:777 Je 19 '15
- San Francisco rejects completed garbage incinerator. Eng Rec 70:sup276-6 D 5 '14
- Seattle's refuse destructors; reasons for discontinuing the use of one of them. Munic J 39:40-1 J1 8 '15
- Six types of construction camp garbage and refuse incinerators. diag Eng & Contr 44:163-5 S 1 '15
- Refuse receptacles**
- Requirements for refuse receptacles; materials and sizes specified by several score of cities. Munic J 39:780-1 N 18 '15

Regina, Saskatchewan

Water supply

Design, construction and cost of new water works reservoir at Regina. R. O. Wynne-Roberts. *Il* diags Eng & Contr 43:385-7 Mr 31 '15

Reindeer

Dr. Grenfell's missions in Labrador. H. H. Heath. *Il* Inland Ptr 55:53-4 Ap '15

Reinforced concrete. See Concrete, Reinforced
Reinforcing bars, Steel. See Steel reinforcing bars

Relativity

Developments in electromagnetism. E. Bloch. *Sci Am S* 79:338-9 My 39 '15

Relays

Automatic device for timing relay and fuse operation. plan Elec W 65:608-9 Mr 6 '15
General Electric compensator type relay. *Il* Ry E 57:544 O 23 '15; Elec R & W Elec'n 67:734 O 16 '15; Iron Age 96:921 O 21 '15; Iron Tr R 57:895 N 4 '15; Power 42:680-1 N 18 '15
Installation of reverse-energy relays. A. R. Haynes. diags Elec W 65:221-2 Ja 23 '15
Photoelectric relay. J. Kunz. diag Elec W 65:854 O 23 '15
Recent developments in switchboard apparatus. E. H. Beckert. *Il* diag Gen Elec R 18:646-7 J1 '15
Relay for protecting single a. c. tie lines. *Il* diag Elec Ry J 46:593-600 S 18 '15
Selective time element of relays. P. Mac-Gahan. diags Elec W 65:597-9 Mr 6 '15
Telegraph relays: abstract. H. W. Malcolm. diags Elec W 65:403-4 F 13 '15

Relief maps

Great relief map of the Panama canal. *Il* Eng N 73:337-8 F 13 '15
Largest spherical relief map in the world; exhibit of the Denver & Rio Grande and affiliated railroads. *Il* Sci Am 112:589 Je 12 '15

Rensselaer polytechnic institute, Troy, N. Y.

New buildings. *Il* Eng N 74:476 S 2 '15

Rent

Distributing overhead expense. N. T. Ficker. *Eng M* 50:58-64 O '15
Rents in public utility accounting. J. Bauer. *J Account* 20:21-7 J1 '15
See also Landlord and tenant

Repair ships

Equipment of repair plant of U. S. S. Vestal. L. J. Connally. *Il* Metal Work 84:670-1 N 26 '15
Floating foundry of the U. S. S. Vestal. F. M. Perkins. *Il* plan Foundry 43:211-15 Je '15

Repair shops

Economic limit of the repair shop. V. W. Berry. *Elec Ry J* 46:1027 My 29 '15
Electrical repair record system: methods of National tube co. J. F. Kelly. *Iron Tr R* 56:1065-7 My 27 '15; Same cond. *Iron Age* 95:1070 My 13 '15; Discussion. *Iron Tr R* 56:1067-9 My 27 '15
Homestead repair shops. *Il* plan *Iron Tr R* 56:859-65 Ap 1 '15
Repair department a profitable side line. *Metal Work* 84:598 N 5 '15
Shops for repair purposes at Gary. *Il* plan *Iron Tr R* 56:277-81- F 4 '15
Steel plant repair system. B. D. Quarrie. *Iron Age* 94:1316-17 D 8 '14
See also Electric railroads—Shops; Mine shops; Railroads—Sanitation; Railroads—Shops

Repair shops, Municipal

Central plant at Chicago will handle repairs to all city equipment. *Il* plan *Eng Rec* 72:266-7 Ag 28 '15
Chicago's municipal repair shop. C. C. Saner. *Il* Munic Eng 48:289-91 My '15

Repairing

Emergency portable repair kit. *Il* Power 42:235-6 Ag 17 '15
See also Repair ships; Repair shops; also subhead Repair under various subjects, a. g. Boilers—Repair

Reporting

Cub reporter. H. Gilmore. *Inland Ptr* 55:32-9 Je '15
How a reporter won his spurs. J. T. Elliott. *Inland Ptr* 55:33-41 Ap '15
Reports, Engineering. See Engineering reports
Reproduction

See also Fecundity; Parthenogenesis

Reptiles

Making natural history popular; attractive museum groups of our common pond reptiles. W. H. Miller. *Il* Sci Am S 80:328-9 N 20 '15

Research, Chemical. See Chemical research

Research, Industrial. See Industrial research

Research, Medical. See Medical research

Research, Scientific. See Scientific research

Research corporation

Practical applications of electrical precipitation and progress of the Research corporation. L. Bradley. bibliog *Il* Am Inst E E Pro 34:623-65 Ap '15

Resemblances. See Heredity

Reservoirs

Blanket versus cut-off wall for sealing bank at Cedar river dam. D. C. Henny. *Eng Rec* 71:656-7 My 22 '15
Building the earth embankment for Hill View reservoir. A. W. Tidd. *Il* plan *Eng N* 74:500-5 S 9 '15
Construction features of the North side reservoir of the water works of the city of Pittsburgh. E. B. Lanpher and J. S. Cole. *Il* Eng Soc W Pa. 30:689-88 O '14; Same. *Eng & Contr* 42:577-9 D 23 '14; Same cond. *Munic J* 38:558-62 Ap 22 '15; Discussion. *Eng Soc W Pa* 30:686-92 O '14
Cutoff-wall and rock grouting at the Milton reservoir embankment. *Il* diags map *Eng N* 73:468-71 Mr 11 '15
Design and cost of new middle system reservoir, Duluth. *Eng & Contr* 43:318 Ap 7 '15
Design, construction and cost of new water works reservoir at Regina, Sask. R. O. Wynne-Roberts. *Il* diags *Eng & Contr* 43:285-7 Mr 31 '15
Evaporation and seepage from irrigation reservoirs. K. A. Hieron. *Il* *Eng N* 74:294-5 Ag 12 '15
Excavating and timbering the very deep trenches required in reservoir and other dam construction. J. M. M. Greig. plans *Eng & Contr* 44:170-8 S 8 '15
Hauling material on the North side reservoir, Pittsburgh. *Eng N* 73:173-4 Ja 28 '15
Improving Liberty, N. Y., water supply. H. W. Taylor. *Il* *Munic J* 38:390-1 Mr 25 '15
Influence of reservoir bottoms on stored water. W. F. Smith. *Il* *Eng N* 72:1289-92 D 31 '14
Leakage from Cedar lake reservoir, Seattle water-supply. C. B. Fowler. *Il* map plan *Eng N* 73:112-15 Ja 21 '15
Nidd valley reservoir of Bradford, England, water works. *Il* *Munic Eng* 48:170-1 Mr '15
Provo reservoir company's irrigation project. C. S. Jarvis. *Il* *Eng N* 74:394-5 Ag 26 '15
Rectangular fire-service reservoir. W. G. Potter. *Il* *Eng Rec* 71:260-1 F 27 '15
Relining a small bricklined water works reservoir with asphalt and concrete at Irwin, Pa. J. M. Rice. *Il* diags *Eng & Contr* 43:373-4 Mr 24 '15
Repairing and waterproofing the Nashville water-works reservoir. W. W. Southgate. *Il* diags *Eng N* 73:349-52 My 6 '15
Reservoir sites on the Colorado river. L. C. Hill. map *Eng Rec* 70:670-1 D 19 '14
St. Maurice river storage project, Quebec. *Eng & Contr* 43:sup29-30 Je 16 '15
Seepage at Cedar river reservoir. *Eng Rec* 71:62 Ja 9 '15
Solving the silt problem: reservoirs suggested for muddy streams of the Southwest. L. C. Hill. *Eng Rec* 70:609-10 D 5 '14
Stripping water-works reservoirs. A. Hawen and G. C. Whipple. *Eng N* 73:858-60 My 6 '15
Stripping water-works reservoirs. F. P. Stearns. *Eng N* 74:302-5 Ag 12 '15
See also Cisterns; Dams; Flood control; Irrigation; Water supply

Reservoirs, Concrete

British practice in the design of reinforced concrete reservoirs. E. R. Matthews. Eng & Contr 42:519-20 D 2 '14

Concrete-lined oil storage reservoirs in California; construction methods and cost data; abstract. E. D. Cole. diag Eng & Contr 44: 408-9 N 24 '15

Construction methods used in building Parkersburg reservoir. L. E. Chapin. diag Eng Rec 72:140-1 JI 31 '15

Construction of the Eden Park reservoir, Cincinnati. K. C. Crain. II Concrete Cem 6:134-5 Mr '15

Design and construction of the North side reservoir of the Pittsburgh water works. II diag plan Concrete Cem 6:227-31 My '15

Making concrete tight; Tacoma and Seattle water-works. C. E. Fowler. II Eng N 74:1076-7 D 2 '15

Placing concrete in reservoir walls by compressed air, Montreal. II diag Eng N 73:122-3 Ja 21 '15

Placing concrete in wall and dam of water supply reservoir at Montreal by compressed air method. II diag Eng & Contr 43:138 F 10 '15

Placing monolithic lining on reservoir bank. II Eng N 74:1034 N 25 '15

Two types of joint between walls and bottom of a reservoir. diag Eng N 73:591 Mr 25 '15

Resins. See Gums and resins

Resistance to rolling of a hard body over a plastic surface. Theory of; abstract. B. B. Schultz. Am Soc M E J 37:478-9, 555-3 Ag-S '15

Resolving

Resolving dredged areas in Victoria. Eng & Min J 98:1136-7 D 26 '14

Resonance

Simple resonance experiment; abstract. O. Steels. diag Elec W 66:987-8 O 30 '15

Respiration. See Breathing

Restaurants

Restaurant lighting. F. L. Godinez. II Arch & Bldg 47:336-8 S '15

Typical restaurant plumbing system. G. D. Crain, jr. II plans Metal Work 32:727-9 D 4 '14

See also Tea rooms and tea houses

Restaurants, Factory. See Factory restaurants

Restraint of trade

Chicago electrical contractors and fixture men indicted for conspiracy in restraint of trade. Elec R & W Elec'n 66:826-7 My 1 '15

Federal court ruling in the Des Moines case. Dom Eng 71:161-2 My 8 '15

See also Monopolies; Trusts, Industrial

Retaining walls

Construction of the Barge canal crossing of Oak Orchard creek. E. Low. II diag Eng N 73:430-2 Mr 4 '15

Log retaining-wall. F. W. Foota. II Eng & Min J 100:394 S 4 '15

Reinforced brickwork retaining wall. diag Engineer 120:10 JI 2 '15

Retaining walls on soft foundations. W. S. Lacher. II diag W Soc E J 20:232-47 Mr '15; Same cond. Eng & Contr 43:576-9 Je 30 '15; Abstract. Ry Age 58:411-13 Mr 5 '15; Discussion. W Soc E J 20:247-65 Mr '15

Temporary timber walls for track elevation. II Eng Rec 71:646 My 22 '15

Retaining walls, Concrete

Concerning the relative costs of plain and reinforced concrete retaining walls. J. I. Oberlander. Eng & Contr 43:457 My 19 '15

Concrete-block and cellular retaining walls. W. S. Lacher. II diag Eng N 73:1048-9 My 27 '15

Concrete retaining wall spans cut for subways undercrossing. II Eng Rec 72:642 N 20 '15

Design methods in concrete construction—retaining walls. S. M. Cotten. diag Concrete Cem 7:68-7 Ag '15

Designing of reinforced concrete retaining walls by comparison with the determined ratios of the various functions of the height and unit pressures. S. M. Cotten. Eng & Contr 42:146-8 Ag 12 '14

Enlarging an old concrete retaining-wall along the White Plains road extension. G. Paaswell. II diag Eng N 74:508-9 S 9 '15

Expansion joints in concrete structures. diag Ry R 57:622-30 N 13 '15; Abstract. Eng Rec 72:532 O 30 '15

From the soil up—a new method of designing. A. Reuterdahl. diag Eng & Contr 43: 581-5 D 23 '14; Same cond. Eng M 48:740-2 F '15

High concrete retaining wall with structural reinforcing. II diag Eng N 73:776-7 Ap 22 '15

High retaining walls of cantilever type for viaduct in St. Louis. S. W. Bowen. diag Eng Rec 72:109 JI 24 '15

Light frames support reinforcement for high retaining wall. II diag Eng Rec 72:56 JI 10 '15

London county hall. diag Engineer 120:147-8 Ag 13 '15

Nearness of railway tracks aids concreting of retaining walls. K. C. Cardwell. II Eng Rec 72:269-70 Ag 28 '15

New method used in constructing the retaining walls of the Lumber exchange building, Chicago. diag Eng & Contr 42:862-3 O 14 '14

New quaywall at Southampton, England. diag Eng N 73:1221 Je 24 '15

Patented cantilever vs. gravity retaining walls. diag Eng N 73:1088 Je 3 '15

Plant and working methods on approaches to North side Point bridge. E. L. Jones. II diag Eng N 72:1124-6 D 3 '14

Retaining wall to support Butler st., near Baker st., Pittsburgh. diag Concrete Cem 5:242-3 D '14

Stepped concrete river wall at Harrisburg, Penn. J. D. Justin. II diag Eng N 74:145-3 JI 22 '15

Returnable packages

Accounting for cement packages. G. Wilson. J Account 19:198-205 Mr '15

Revenue cutters

New United States revenue cutters. diag plans Int Marine Eng 20:4-7 Ja '15

Reverberatory furnaces. See Furnaces, Metallurgical

Rewards, prizes, etc.

Prizes for scientists. Sci Am S 80:228 O 9 '15

Rhelnas cathedral

Rhelnas cathedral. L. Brachet. II Am Inst Arch J 3:14-15 Ja '15

Rheostats

High-voltage water rheostat. L. I. Clark. II diag Elec W 65:669-70 Mr 13 '15

Large water rheostats. diag Elec W 65:41-2 Ja 2 '15

New types of Ward Leonard resistors. II Elec R & W Elec'n 65:1098-9 D 5 '14

Sliding-contact tube rheostats. II Elec W 66: 660 S 18 '15

Water rheostats. N. L. Rea. diag Gen Elec R 18:1001-3 O '15

See also Electric controllers; Electric resistance

Richards, Joseph William, 1864-

Sketch. por Eng M 50:204-5 N '15

Richmond, Va.

Architecture

Thomas Jefferson and the first monument of the classical revival in America. F. Kimball. II Am Inst Arch J 3:370-81 S '15

Riddles

Portable riddle of novel design. II Iron Tr R 57:832 O 28 '15

Rifle practice. See Target practice

Rifle ranges

Electric remote gages for shooting ranges. Sci Am 112:633-4 Je 26 '15

Lighting of rifle ranges. II Elec R & W Elec'n 67:372 Ag 28 '15

Lighting of rifle ranges. A. P. Trotter and others. II diag Illum Engr 8:251-81 Je '15

Model target ranges in Belgium. Sci Am S 79:165 Mr 18 '15

Rifles

Cincinnati rifle barrel grinding machine. diag Mach 22:250-1 N '15

Rifles—Continued

- European infantryman's rifle. E: C. Crossman. *Il Sci Am* 112:398-9 My 1 '15
 Rifle and its bullet. H. L. Heussner. *Il diags Sci Am* 80:368-9 O 23 '15
 Rifles and mortars. *Il diags Sci Am* 111:472-3 D 5 '14
 Telescope sights for fighting rifles. E: C. Crossman. *Il Sci Am* 113:118-19 Ag 7 '15

Rights of way

- Location and width of highways and the securing of rights-of-way. A. D. Fletcher. *Eng & Contr* 42:523-4 D 3 '14; Same cond. *Eng Rec* 70:568 N 21 '14
 United States mining statutes annotated; rights of way. J. W. Thompson. *U S Bur Mines Bul* 94:pt 2, 1188-93 '15

Rignoux, Georges

- Telephotographic apparatus of Georges Rignoux. R. Arapu. *diag Sci Am* 8 79:331 My 22 '15

- Riker, Andrew L., 1868-
 Sketch. *por Eng M* 50:220-1 N '15

- Ripley, Edward Payson, 1845-
 Celebration of seventieth birthday. *por Ry R* 57:578-86 N 6 '15

- Dinner to E. P. Ripley on seventieth birthday. *por Ry Age* 59:849-53 N 5 '15

- Ripple marks. See Seashore

Riprapping

- Earth embankment and fill at Shopton, Iowa. *Il plan Eng N* 72:1172-3 D 10 '14

Rittman, Walter F.

- Government publicity methods. W. O. Snell-
 ing. *Met & Chem Eng* 13:273-3 My '15; Ex-
 cerpt. *Eng & Min J* 59:787-8 My 1 '15

- Rittman process. See Gasoline

River traffic

- Facilities for shipping and freight handling at river ports. M. E. R. Tratman. *Int Marine Eng* 20:115 Mr '15
 River traffic in the United States. *Ry R* 56:164 Ja 30 '15

Rivers

- Rivers and railroads in the United States. W: W. Harts. *Ry Age* 58:230-1 F 5 '15

- Snag boats on flood rivers. D. A. Willey. *Il Sci Am* 8 79:149 Mr 6 '15

- Transportation of debris by running water. R. T. Hancock. *Eng & Min J* 59:469-60 Mr 6 '15

- Why rivers overflow: how floods may be prevented. A. B. Morgan. *Il diags Sci Am* 8 78:392-4 D 19 '14

- See also Dams; Floods; Hydraulics; Mining debris; River traffic; Stream flow; Stream measurement; Valleys; Water pollution; Water power; Waterways

Pollution**See Water pollution****Regulation**

- Combination concrete pavement and board mattress bank protection. *Il Eng & Contr* 44:271 O 6 '15

- Cost data on the work of improving the Neponset river in Massachusetts. E. M. Blake. *Il Eng & Contr* 43:34-6 Ja 13 '15

- How \$20,000,000 is to be spent; allotment of appropriation to government river and harbor projects. *Eng & Contr* 43:sup24 Ap 14 '15

- Illinois waterway—proposed eight foot channel from Lockport to Ulica. *map Eng & Contr* 43:201 Mr 3 '15

- Improvement of the river Trent. *map Engineer* 119:130-1 F 5 '15

- Lumber mattresses for bank protection. J. W. Skelly. *Eng Rec* 71:276 F 27 '15

- Lumber mattresses for bank protection in Louisiana. *Il Eng Rec* 70:686 D 26 '14

- Methods of creating and maintaining channels at mouths of fluvial and tidal rivers. E. L. Courthell. *Eng Rec* 71:42 Ja 9 '15

- Missouri river improvement work may be stopped. H. Deakyns. *Eng N* 74:409 Ag 26 '15

- Neponset river reclamation. W. B. Conant. *Il Munic J* 39:264-5 Ag 19 '15

- Paving river-beds with concrete. *Il Sci Am* 113:362+ O 23 '15

- Plan for the improvement of Hell Gate, East river. C. D. Ward. *map Sci Am* 112:432 My 8 '15

- Plastic concrete mattress for river revetment. *Il diags Eng N* 74:202-3 Ag 5 '15

- Protecting valuable river lands in California. E. F. Comstock. *Il diag Eng N* 73:827 Ap 29 '15

- River-front improvement at Cape Girardeau, Mo. *Il Eng N* 73:874-5 My 6 '15

- River improvement for public health reclaims 10,000 acres of fertile land. R. W. Sherman. *Il map Eng Rec* 71:738-9 Je 12 '15

- Solving the silt problem: reservoirs suggested for muddy streams of the Southwest. L: C. Hill. *Eng Rec* 70:609-10 D 5 '14

- Stepped concrete river wall at Harrisburg, Penn. J. D. Justin. *Il diag Eng N* 74:146-8 Jl 22 '15

- Wire and rock mattress to protect bridge pier. J. H. Flisk. *Eng N* 74:986 N 18 '15

- See also Channels; Flood control; Mississippi river

- Rivers and harbors congress, National. See National rivers and harbors congress

- Riverside, New York

Bridges

- New B. R. & P. structure across Allegheny river at Riverside. *Il diag Ry Age* 58:846-6 Ap 16 '15

Riveting

- Behavior of riveted joints under stresses: abstracts. J. E. Howard. *Int Marine Eng* 20:18-10 Ja '15; *Power* 41:216 F 9 '15

- Combination rivet set. H. L. Loucks. *diag Ry Age (Mech ed)* 89:251 My '15

- Diagram for net section of riveted tension members. T. A. Smith. *Eng N* 73:893 My 6 '15

- Eccentric rivet connections. C: D. Conklin, jr. *Eng Rec* 71:58 Ja 9 '15

- Eccentric rivet connections. J: C. Prior. *Eng Rec* 71:212 K 13 '15

- Hanna riveting machine. *Il Ry Age (Mech ed)* 89:447 O '15; *Eng Itoc* 72:775 D 18 '15; *Mach* 22:347 D '15

- Machine which heats and drives rivets. *Il Iron Age* 95:937-8 Ap 29 '15

- Methods of jointing aluminum. *Il Mach* 21:471-2 F '15

- 100-ton pneumatic riveting hammer. *Il Iron Age* 95:796 Ap 8 '15

- Riveting in steel arch construction. H. A. Hatfield. *Il diags Ry Age (Mech ed)* 89:33-6, 87-90 Ja-F '15

- Safe eccentric loading of rivets. J. L. Stanio. *Sch Mines* 1 35:213-22 Ap '14; Excerpt. *Eng & Contr* 42:512 D 3 '14

- See also Rivets

- Authorities against rivet-tension. *Eng N* 74:183-5 Jl 23 '15

- Rivets in tension. V. H. Potts. *Eng N* 74:606 S 23 '15

- Tension rivets successful. *Eng N* 74:347 Ag 19 '15

- Tools for making a double-pronged rivet. *Il diags Mach* 21:200 D '14

- Rivett, Joseph P.

- Rivett long machine. A. W. Birdsall. *Il por Inland Tr* 55:95-6 Ap '15

- Road administration. See Highway administration

- Road builders' association, American. See American road builders' association

- Road congress, Pan-American. See Pan-American road congress

- Road drags

- Construction and use of the wooden road drag. *Il diags Eng & Contr* 43:213-15 Ag 26 '14

- Road foundations. See Pavements—Foundations; Roads—Foundations

- Road laws. See Highway law

- Road making machinery

- Austin ripper and Western grader. *Il Munic J* 39:375 S 2 '15

- Brick road on machine-leveled subgrade. *Eng Rec* 71:209 F 13 '15

- Development of the road paving plant. *Il Munic Eng* 47:478-81 D '14

Road making machinery—Continued

- Grading machine loads nine two-yard wagons in ten minutes. *Il* Munic Eng 49:124-5 S '15
- Guaranteed traction grader. *Il* Eng & Contr 44:97-8 Ag 4 '15
- Hetherington road building plant. *Il* Munic J 37:815 D 3 '14
- Hints on selecting machinery for road building. Eng Rec 71:151 Ja 30 '15
- Location and construction of highways in mountain country. F. W. Harris. *Il* Eng N 72:1200-1 D 17 '14; Same (Bagley scraper for road making). Eng & Min J 99:325 F 13 '15
- Machinery for construction and maintenance. T. R. Agg. Good Roads n s 9:21-4 Ja 2 '15; Same. Eng & Contr 43:156-8 F 17 '15
- Maney four-wheel scraper. *Il* Munic Eng 49:125-6 S '15
- Operation analysis of new machines which cheapen the moving of earth on road work. A. B. McDaniel. *Il* Eng Rec 72:126-8 J1 31 '15
- Portable drilling rig on road and street work—performance records in cutting trenches and cleaning reservoirs. *Il* Munic Eng 49:123-4 S '15
- Power road machinery with special reference to hauling and earth road grading. N. De Wind. *Il* Eng & Contr 43:83-5 Ja 27 '15
- Road and street exhibits at the Panama-Pacific International exposition. *Il* Good Roads n s 10:154-9 S 4 '15
- Road planer, grader and ditcher. *Il* Good Roads n s 9:80-1 F 6 '15
- Road scarifier. *Il* Good Roads n s 9:80 F 6 '15
- Scarifier attachment for Austin road graders. *Il* Eng & Contr 44:55 J1 21 '15
- Sixth Good roads show. Chicago, Dec. 14-18. *Il* Good Roads n s 9:30-7 Ja 3 '15
- See also* Paving machinery; Road drugs; Road rollers

Road maps

- Sixth volume added to Blue books. maps Automobile 32:596-9 Ap 1 '15

Road materials

- Asphaltic materials for road construction. A. A. Berkowitz. Eng & Contr 42:161-3 Ag 12 '14; Same. Munic Eng 47:461-7 D '14
- Bituminous road construction; committee report to Am. Soc. C. E. Munic J 38:286-8 Mr 4 '15; Same. Eng & Contr 43:278-80 Mr 24 '15
- Development of refined tars for use in road construction and maintenance. P. P. Sharples. Met & Chem Eng 13:918-20 D 1 '15
- Investigation of the concrete road-making properties of Minnesota stone and gravel. C. F. Shoop. *Il* Minn U Bul 2:1-55 '15
- Methods of sampling materials of construction used by the New York highway commission. Eng & Contr 42:153-60 Ag 12 '14
- Practical testing of asphalt and road oil. T. A. Fitch. Eng & Contr 44:367-9 N 10 '15
- Proposed standard definitions of road and pavement materials. Munic Eng 49:76 Ag '15
- Proposed standard terms for bituminous road materials. Eng & Contr 42:334-5 S 2 '14
- Proposed standard tests of bituminous road materials. Eng N 73:187 Ja 28 '15
- Sixth Good roads show. Chicago, Dec. 14-18. *Il* Good Roads n s 9:30-7 Ja 3 '15
- State-wide survey locates road-making materials in New York. Eng Rec 71:488-9 Ap 17 '15

See also Bituminous materials; Concrete; Gravel; Road oils

Road ollers

- Motor truck for oiling roadways. F. Reed. *Il* Munic Eng 47:442-4 D '14
- Road oiler developed to meet California conditions. *Il* Eng Rec 72:362 S 18 '15

Road oils

- Device tests adhesiveness of California road oils. *Il* Eng Rec 71:329 Mr 13 '15
- Practical testing of asphalt and road oil. T. A. Fitch. Eng & Contr 44:367-9 N 10 '15
- Progress reports of experiments in dust prevention and road preservation, 1914. U S Agric Bul 257:1-44 '15
- Road oil test for loss on heating needs revision. N. Chivvis. diags Eng Rec 72:570-6 N 6 '15

Road rollers

- Cheap and effective backfilling with a road roller. E. A. Heintz. *Il* Eng N 73:941 My 13 '15
- Electrically-driven road roller at St. Louis. *Il* Elec Ry J 44:1355 D 19 '14
- Twelve-ton oil-propelled road roller. *Il* Engineer 119:212 F 26 '15

Road signs

- Color schemes for highway signs as illustrated by practice in the Philippine Islands. J. L. Harrison. *Il* diags Eng & Contr 44:280-1 O 13 '15
- Concrete sign boards for highways. W. M. Kinney. Concrete Cem 7:32 J1 '15
- Concrete street signs and standards—letters in colored concrete. *Il* diag Concrete Cem 7:45 J1 '15
- County road signs placed in 1915. Munic Eng 48:270 Ap '15

Road surveys. See Roads—Location**Road traffic**

- Segregation and analysis of local traffic: a neglected factor in traffic recording on country roads. Eng & Contr 42:283 S 23 '14
- Traffic; present tendencies, probable development and regulation. A. W. Dean. Good Roads n s 9:56-6 F 6 '15
- Value of a traffic census in determining the type of road to be constructed. W. W. Marr. Eng & Contr 44:369-70 N 10 '15
- Roadmasters' and maintenance of way association
- 33d annual convention, Chicago, Sept. 7-10. Ry Age 59:517-25 S 17 '15
- 33d annual convention, Chicago, Sept. 7-10. Ry R 57:324-6 S 11 '15

Roads

- American road builders' association: abstracts of papers at the 11th annual convention held at Chicago, Dec. 14-18, 1914. Eng Rec 70:663-5 D 19 '14
- Benefits and burdens of better roads. S. E. Bradt. Good Roads n s 10:212-15 O 2 '15
- Boulder parapet for roadways in Fallsades interstate park. *Il* Eng N 74:162-3 J1 22 '15
- Comparative value of penetration road. D. T. Pierce. *Il* Good Roads n s 10:200-3 N 6 '15
- Construction and maintenance of roads and bridges from July 1, 1913, to December 31, 1914. U S Agric Bul 284:1-64 '15
- Convention of American road builders' association, Chicago, Dec. 14-18. Eng Rec 70:sup 305-6 D 26 '14
- Design of cross-sections for steep grades on public highways. R. H. Piepmeyer. *Il* Eng & Contr 44:180-90 S 8 '15
- Determination of the justifiable outlay for specific cases of highway improvement. C. Richardson. Good Roads n s 10:196-7 O 2 '15
- Discussion of road construction at Am. Soc. of C. E. Eng N 73:186-7 Ja 28 '15
- Economic factors all-important in rural highways. L. W. Page. Eng Rec 72:385 S 25 '15
- Economic factors involved in road construction in strictly rural sections. G. Henry. Eng & Contr 42:255-8 S 9 '14
- Efficiency system for road contractors. J. H. Hammond. Eng & Contr 43:52-4 Je 23 '15
- Equipment for highway work. A. H. Blanchard. Good Roads n s 10:252-4 N 6 '15
- Features of road construction: road surfacing and corrugation. Sci Am S 80:283 O 30 '15
- 5th American good roads congress and 11th annual convention of the American road builders' association at Chicago, Dec. 14-18, 1914. Good Roads n s 9:3-29, 53-75, 96-106 Ja 2, F 6, Mr 6 '15
- Handling 400 tons of stone per day with auto trucks. Eng Rec 70:621-2 D 5 '14
- Heavy traffic roads. H. G. Shirley. Eng Rec 70:534-5 N 14 '14; Same. Eng & Contr 42:537-8 D 9 '14
- How small communities may have good roads. L. W. Page. *Il* Sci Am 112:14-15 Ja 3 '15
- Improvement of a section of lightly travelled country road using funds limited in amount. S. P. Hooker. Eng & Contr 43:86-7 Ja 27 '15
- Kinks in road construction. C. D. Franks. Eng Rec 71:197-8 F 13 '15

Roads—Continued

Location and construction of highways in mountain country. F. W. Harris. 11 diags Eng N 72:1199-1201 D 17 '14; Excerpt (Don'ts in mountain road location). Eng & Min J 99:237-8 Ja 30 '15

Maximum use of industrial railway possible at low cost. F. Tarrant. Eng Rec 71:653-4 My 22 '15

Motor truck in road building. 11 Munic Eng 48:205-8 Mr '15

Pan-American road congress proceedings at Oakland. Eng Rec 72:367-8, 397-8 S 18-25 '15
Plea for greater mileage. S. P. Hooker. Eng Rec 70:702 D 26 '14

Portable railway in highway construction. 11 Good Roads n s 9:180-1 My 1 '15

Road building with industrial equipment: twelve-car train hauled by a 20-horsepower dinky. 11 Eng Rec 70:621 D 5 '14

Road congress at Atlanta. Good Roads n s 8:217-20 D 5 '14

Road exhibition and conference. Horticultural hall, London. Engineer 120:27-8 J1 9 '15

Split road on curve forces autoists to keep to right. 11 Eng Rec 72:7 J1 3 '15

Theory of resistance to rolling of a hard body over a plastic surface; abstract. B. B. Schultz. Am Soc M E J 87:555-8 S '15

Traffic limits of various types of pavements. W. D. Washington. Eng & Contr 42:403-5 O 28 '14

Utilization of the motor truck in highway work. 11 Good Roads n s 9:171-9 My 1 '15

Wearing surfaces. G. W. Tillson. Good Roads n s 9:141-3 Ap 3 '15

Width, alignment grade and drainage features of the designing of country roads. R. A. Meeker. plan Eng & Contr 42:346-7 O 7 '14

See also Causeways; Curbs; Dust prevention; Earthwork; Guard rails (for highways); Highway administration; Highway engineering; Pavements; Railroads; Railroad—Crossings; Road making machinery; Road maps; Road materials; Road traffic; Sidewalks; Speedways; Street cleaning; Street railroads; Streets; also Dixie highway; Lincoln highway

Accounting

See Highway accounting

Contracts

Going broke in road contracting. Eng & Contr 43:188 Mr 3 '15

Lump-sum contracts favored for Washington roads. Eng Rec 71:174 F 6 '15

Road contract of a hundred years ago. Eng & Contr 43:323-4 Ap 7 '15

Convict labor

Colorado makes 50 per cent saving with convict labor. J. E. Maloney. Eng Rec 72:444 O 9 '15

Convict classification for state road work. G. P. Coleman. Eng Rec 71:751-2 Je 13 '15

Convict labor for highway work. G. P. Coleman. Good Roads n s 10:208-10 O 2 '15

Convict labor in road construction in Colorado; with discussion. T. J. Ehrhart. Good Roads n s 9:101-3 Mr 6 '15; Excerpt Eng N 73:375 F 25 '15

Convict labor on Alabama roads. Good Roads n s 10:82 Ag 7 '15

Convict labor on country roads. G. C. Warren. 11 Munic Eng 48:26-35 Ja '15

Convict work in Arizona. F. G. Twitchell. Munic J 39:430-2 S 16 '15

Cumberland county, Maine, approves of convict labor on roads. Good Roads n s 10:69-70 J1 24 '15

Organization and equipment of convict camps in Georgia; methods and cost. J. C. Koch. 11 diags Eng & Contr 43:433-5, 500-2 My 13, Je 2 '15

Road building by convict labor. 11 Good Roads n s 8:211-16 D 5 '14

Road building with convict labor in Fulton county, Georgia. W. T. Wilson. 11 Eng & Contr 42:440-2 N 4 '14

Road construction in Reading township, Livingston county, with convict labor. B. H. Piepmeyer. 11 Eng & Contr 44:39-41 J1 14 '15

Utilization of short-term convicts for highway work in Georgia. J. L. Stanford. Munic Eng 48:124-6 F '15; Same. Eng & Contr 43:290-1 Mr 31 '15
Washington's state highways and highway department. W. R. Roy. 11 Munic J 39:346-9 S 2 '15

Cost

Comparative costs of brick and concrete roads in Illinois. H. E. Bilger. Eng N 73:633 Ap 1 '15

Comparative costs of guard rail and wide fills on highways. diags Eng N 74:79-80 J1 8 '15

Convict work in Arizona. F. G. Twitchell. Munic J 39:430-2 S 16 '15

Cost of highways in three states. Munic J 38:425 Ap 1 '15

Cost of macadam object lesson roads in North Carolina. Eng & Contr 43:544-5 Je 16 '15

Costly road: Hudson county boulevard. Eng N 73:1049-50 My 27 '15

Costs of monolithic brick road construction. R. L. Bell. Eng & Contr 44:369 N 10 '15

Economical highway design. W. G. Harger. Eng N 73:1156-8 Je 17 '15

Expenditures for permanent and perishable features of roads. Eng Rec 70:635 D 12 '14

Highway bonds: a compilation of data and an analysis of economic features affecting construction and maintenance of highways financed by bond issues, and the theory of highway bond calculations. L. I. Hewes and J. W. Glover. U S Agric Bul 136:24-7 '15

Methods and cost of road grading in West Virginia. A. D. Williams. Eng & Contr 43:16-17 Ja 6 '15; Excerpt (Cost of grading and excavating). Concrete Cem 5:267-8 D '14

Methods and costs of constructing three sections of sand-clay road. J. H. Pratt. Eng & Contr 43:375-6 Ap 28 '15

Methods and costs of moving earth in southern road construction. N. C. Hughes, jr. Eng N 73:734-5 Ap 15 '15

Methods and costs of road work in district number two of Lowndes county, Mississippi. 11 Good Roads n s 9:91-3 Mr 6 '15

Minnesota road work statistics for 1914. Eng & Contr 44:4-5 J1 7 '15

Operation analysis of new machines which cheapen the moving of earth on road work. A. B. McDaniel. 11 Eng Rec 72:126-8 J1 31 '15

Organization and standards of the Wisconsin highway commission. 11 diags Eng & Contr 42:393-403 O 28 '14

Percentage of road money for roadbed. Horseless Age 34:897-8 D 23 '14

Price and cost of a road. H. E. Bilger. 11 Munic Eng 48:286-8 My '15

Price in Illinois of three popular types of road. Eng & Contr 43:345 Ap 14 '15

Progress of state management of public roads. J. E. Pennybacker. Eng & Contr 44:133 Ag 18 '15

Relative 20-year economy of various types of roads and pavements. R. Trauttschold. Eng & Contr 44:89-91 Ag 4 '15

Resurfacing water bound macadam. S. C. Corson. Munic J 38:422-3 Ap 1 '15

Road maintenance: cost in France, England and Massachusetts. W. D. Sohler. Munic J 37:956-7 D 31 '14

See also Haulage—Cost; Roads, Concrete—Cost

Cost of maintenance

See Roads—Maintenance and repair

Crowns

Sloping versus curved crowns for highways. W. S. Farley. Eng Rec 72:174 Ag 7 '15

Superelevation of curves on highways, Illinois practice. H. E. Bilger. Eng N 74:74-5 J1 8 '15

Drainage

Drains for county roads, 1915. Munic Eng 48:265 Ap '15

Road drainage and foundations. G. W. Cooley. Good Roads n s 10:202 O 2 '15

Subdrainage of earth roads. 11 Eng N 73:828-9 Ap 29 '15

Roads—Continued

Finance

- Apportionment of cost of highway bridges between street railways and cities; with discussion. C. M. Spofford. *Il diags W Soc E J* 20:406-43 My '15
- Benefits and burdens of better roads. S. E. Bratt. *Good Roads n s* 10:214-15 O 2 '15
- County bond issues for road work during the present year. *Good Roads n s* 10:280 N 20 '15
- Financing and building a county highway. *Il Munic Eng* 48:328-32 Je '15
- Financing county roadbuilding in Illinois. map *Eng N* 74:1079 D 2 '15
- Financing of permanent road construction. W. A. McLean. *Eng & Contr* 43:231-2 Mr 10 '15
- Gains made by state management of road construction and maintenance. J. E. Pennybacker. *Eng Rec* 72:189-90 Ag 14 '15
- Good roads—bond issues—automobiles. A. A. Young. *Eng M* 49:600-1 J1 '15
- Highway bonds: a compilation of data and an analysis of economic features affecting construction and maintenance of highways financed by bond issues, and the theory of highway bond calculations. L. I. Hewes and J. W. Glover. *Il maps U S Agric Bul* 136:1-129 '15
- Highway indebtedness; its limitation and regulation. N. P. Lewis. *Good Roads n s* 10:194-6 O 2 '15
- Life of highway improvement should limit term of bonds. N. P. Lewis. *Eng Rec* 72:352 S 18 '15
- Methods of retiring rural highway bonds. *Horseless Age* 34:858-9 D 9 '14
- Motor truck and the road; who should pay the road tax? J. S. Harwhite. *Il Sci Am* 113:66-1 J1 17 '15
- Relation of farm produce hauling to permanent road improvements. W. A. McLean. *Eng & Contr* 42:215-17 Ag 26 '14
- Road bonds should provide for maintenance. J. F. Witt. *Eng Rec* 72:352-3 S 18 '15
- Road improvement. W. A. McLean. *Good Roads n s* 9:4-7 Ja 2 '15
- State aid road work in New Jersey. *Il Good Roads n s* 9:252-3 Je 19 '15

See also Roads—Cost

Foundations

- Costs of monolithic brick road construction. R. L. Bell. *Eng & Contr* 44:369 N 10 '15
- Drainage and foundations on the Maine Post road. W. J. Dougherty. *Il Eng N* 74:458 S 2 '15
- Prevention of foundation movement in roads. *diags Eng & Contr* 42:396 O 21 '14
- Road drainage and foundations. G. W. Cooley. *Good Roads n s* 10:302 O 2 '15
- Road foundations—concrete, telford, gravel, etc.; with discussion. J. A. Johnston. *Good Roads n s* 9:14-21 Ja 2 '15

Grades

- Alignment and grades on country roads requiring a pavement not readily replaceable. *Eng & Contr* 43:21 Ja 18 '15
- Conditions determining maximum grades and methods and cost of road grading in West Virginia. A. D. Williams. *Eng & Contr* 43:16-17 Ja 6 '15
- Design of cross-sections for steep grades on public highways. B. H. Piepmeyer. *Il Eng & Contr* 44:189-90 S 8 '15
- Importance of grades increases with betterment of road. B. McCormick. *Eng Rec* 71:265-6 F 27 '15
- Road grading in counties, 1915; tabulation. *Munic Eng* 48:258-60 Ap '15

Inspection

- Inspection of state aid road construction in Wisconsin. J. T. Donaghey. *Eng & Contr* 42:462 N 11 '14

Law

See Highway Law

Location

- Lack of progress in methods of earth road location. W. C. Fawcett. *Good Roads n s* 9:234 Je 5 '15

Preliminary surveys for Michigan highways cost \$2.72 per mile. *Eng Rec* 72:113 J1 24 '15

Proper road location; its importance and effects. W. R. Roy. *Good Roads n s* 10:200-2 O 2 '15

Road location and the economics of road improvement. D. T. Brown. *Eng & Contr* 43:15-16 Ja 6 '15

Road reconnaissance and the application of sound engineering principles to road location in California. *Eng & Contr* 43:258 Mr 17 '15

Surveys and construction plans for trunk line road construction in Michigan. *Il diags Eng & Contr* 43:162-7 F 24 '15

Maintenance and repair

- How Minnesota maintains her earth roads. *diag Eng Rec* 71:745 Je 13 '15
- Maintaining bituminous surfaces. W. H. Connell. *Munic J* 38:436-7 Ap 1 '15
- Maintaining concrete and brick roads in Illinois. B. H. Piepmeyer. *Il Eng N* 74:310-13 Ag 13 '15
- Maintenance. W. W. Crosby. *Good Roads n s* 9:188-9 My 1 '15
- Maintenance and repair of Pennsylvania state roads. *Eng & Contr* 42:590-3 D 23 '14
- Maintenance cost system used on U. S. experimental road. E. W. James and C. S. Reeve. *Il Eng Rec* 71:418-21 Ap 3 '15
- Maintenance; materials and methods. A. W. Dean. *Good Roads n s* 10:206-8 O 2 '15
- Maintenance neglected in bond-built roads. *Horseless Age* 35:181 F 8 '15
- Maintenance of macadam and gravel roads. *Eng N* 73:637-8 Ap 1 '15
- Patrol system of road maintenance and repair in Pennsylvania. *Eng & Contr* 44:70-1 J1 28 '15; Same cond. *Eng Rec* 72:100 J1 24 '15
- Relative 20-year economy of various types of roads and pavements. R. Trauttschold. *Eng & Contr* 44:89-91 Ag 4 '15
- Repair and maintenance costs of park roads in Boston, Mass., in 1913. *Eng & Contr* 42:234 S 2 '14
- Road-maintenance costkeeping in Pennsylvania. *Eng N* 74:250-3 Ag 5 '15
- Road maintenance costs in Monroe county; New York state highways. *Eng & Contr* 43:511-12 Je 9 '15
- Road maintenance in San Joaquin county, California. W. B. Hogan. *Il map Eng & Contr* 42:122-9 Ag 5 '14
- Traffic and the methods and cost of road maintenance in Massachusetts and a comparison with English and French conditions. W. D. Sohler. *Eng & Contr* 42:607-12 D 30 '14; Same cond. *Eng N* 72:1036-8 N 19 '14; Same cond. *Munic J* 37:956-7 D 31 '14
- Tropical road maintenance complicated by floods. *Eng Rec* 72:224 Ag 21 '15

See also Roads—Surface treatment

Specifications

- New and different specification for concrete roads. W. W. Crosby. *Eng & Contr* 44:381-5 N 17 '15
- Organization and standards of the Pennsylvania state highway department. *Il diags Eng & Contr* 42:180-93 Ag 18 '14
- Organization for and methods and cost of state aid road construction in Alabama. *Il diags Eng & Contr* 42:506-8 N 25 '14
- Report of the American road builders' association committee on standards. *Good Roads n s* 9:223-9 Je 5 '15
- Road specifications with special reference to rolling. W. W. Crosby. *Eng & Contr* 42:594-6 D 23 '14
- Specifications and standards of the Maine highway commission. *diags Eng & Contr* 42:276-81 S 15 '14
- Specifications covering the rolling of road crusts of various types. W. W. Crosby. *Good Roads n s* 10:172-3 S 18 '15
- Surveys and construction plans for trunk line road construction in Michigan. *Il diags Eng & Contr* 43:164-6 F 24 '15
- Uniform plans and specifications. A. D. Williams. *Good Roads n s* 10:263 N 6 '15

State aid

See Roads—Finance; Roads, State aid

Roads—Continued

Surface treatment

- Comparative value of penetration roads. D. T. Pierce. *Il Good Roads* n 10:280-3 N 6 '15
- Construction of bituminous surfaces on country roads. Muncie Eng 49:71-2 Ag '15
- Cost of bituminous surfacing for roads analyzed. *Il Eng Rec* 72:336 S 11 '15
- Maintaining bituminous surfaces. W: H. Connell. Muncie J 38:436-7 Ap 1 '15
- Methods and cost of constructing a bituminous carpet on concrete roads. F. W. Whitlow. Eng & Contr 42:509-70 D 18 '14
- Progress reports of experiments in dust prevention and road preservation, 1914. U S Agric Bul 257:1-44 '15
- Resurfacing an old concrete road. *Il Muncie J* 37:355-6 D 31 '14
- Resurfacing old roads. W: D. Uhler. Good Roads n 9:210-12 O 2 '15; Same cond. Eng Rec 72:391-2 S 25 '15
- Road and boulevard construction in Philadelphia, with tables of costs. *Il map Muncie Eng* 48:243-2 Ap '15
- Specifications for the application of resurfacing asphalt binder. Eng N 73:770 Ap 23 '15
- Surfacing the Boston Post road. *Il Muncie J* 39:547-8 O 7 '15
- Unit costs of bituminous carpet treatment and bituminous macadam by the penetration method on two roads in Illinois. Eng & Contr 42:524 D 2 '14
- Unit costs of resurfacing portions of the Niagara river road in Queen Victoria Park, Canada. J: H. Jackson. *Il Eng & Contr* 42:536 D 9 '14

See also Roads, Oiled; Roads, Tarred

Terminology

- Bituminous nomenclature. Eng & Contr 42:491-2 N 25 '14
- Bituminous road construction; committee report to Am. Soc. C. E. Muncie J 38:286-3 Mr 4 '15; Same. Eng & Contr 43:278-80 Mr 24 '15
- Proposed standard definitions of road and pavement materials. Muncie Eng 49:76 Ag '15
- Proposed standard terms for bituminous road materials. Eng & Contr 42:234-5 S 3 '14
- What is asphaltic concrete? Muncie J 38:697-8 My 20 '15

Width

- Road and pavement dimensions—widths, depths and crown; with discussion. L. White. Good Roads n 9:8-14 Ja 2 '15

Alabama

- Highway improvement in the far South. C: E. Foote. *Il Horseless Age* 35:481-2 Ap 7 '15
- Organization for and methods and cost of state aid road construction in Alabama. *Il diags Eng & Contr* 42:504-8 N 25 '14

Alaska

- Alaska's road and bridge builders face snow, frozen ground and glacial floods. G. E. Edgerton. *Il map Eng Rec* 71:764-6 Je 19 '15; Abstract. Eng M 49:730-7 Ag '15
- Methods and cost of road and trail construction in Alaska. F. A. Pope. map Eng & Contr 42:231-4, 302-4 S 2, 23 '14

California

- Building a 3000-mile highway system for \$18,000,000. Eng Rec 71:233-4 F 20 '15
- California highway commission's work. A. B. Fletcher. *Il Muncie J* 39:352-4 S 2 '15
- California state highways. A. B. Fletcher. *Il Good Roads* n 10:119-26 S 4 '15
- Concrete base construction on California state highways. J. B. Woodson. Eng & Contr 42:235 S 2 '14
- Example of costly highway construction. *Il Eng Rec* 72:102 J 24 '15
- New California road overcomes mountain barrier. N. D. Darlington. *Il Eng Rec* 72:322-3 S 11 '15

Colorado

- New automobile highway ascends Pikes Peak. *Il map Eng Rec* 71:769-70 Je 19 '15
- Phases of road improvement work in Colorado. J. E. Maloney. Good Roads n 10:97-8 Ag 7 '15

- Road construction in Denver's mountain parks. O. B. Thum. *Il plan Muncie J* 38:417-20 Ap 1 '15

Florida

- Highway conditions in Florida. C: E. Foote. Good Roads n 9:139-40 Ap 3 '15
- Impressions of Florida roads. *Il Good Roads* n 9:144-5 Ap 3 '15
- Misuse of a good paving material is detrimental to Florida road development. C: E. Foote. *Il Eng Rec* 71:452-3 Ap 10 '15
- Road improvement in the far South. C: E. Foote. *Il Horseless Age* 35:351-2 Mr 10 '15
- Sand-asphalt may solve Florida road problem. C: E. Foote. *Il Eng Rec* 71:622-3 My 15 '15
- Sheet asphalt for Florida roads. G: L. Watson. *Il Muncie J* 39:503-6 S 30 '15

Georgia

- Road building with convict labor in Fulton county, Georgia. W. T. Wilson. *Il Eng & Contr* 42:440-2 N 4 '14

Great Britain

- Life of English roads as determined from traffic statistics. W. de H. Washington. Eng & Contr 42:594 D 23 '14

Hawaii

- Features of highway work in Hawaii. *Il Good Roads* n 9:182-4 My 1 '15

Idaho

- Proposed Idaho state highways. *Il Eng N* 73:936 My 13 '15
- Survey of the Idaho state highway system. *Il Good Roads* n 9:219-21 Je 5 '15

Illinois

- Concrete and brick as paving materials on Illinois highways. H. E. Bilger. Eng & Contr 43:254-5 Mr 17 '15
- Organization of road work under the Illinois highway commission. *Il map Eng & Contr* 43:468-72 My 26 '15
- Revised cross-sections for Illinois roads. H. E. Bilger. *Il Eng N* 74:534-7 S 23 '15
- Selecting rural-road types for the state of Illinois. W: W. Murr. Eng N 74:834 O 28 '15

India

- British India. U S Sp Cons Rep 73:182-6 '15

Iowa

- Experiment with gravel roads in Iowa. T. R. Agg. *Il Eng Rec* 72:661-6 N 27 '15

Massachusetts

- Bituminous penetration roads in Massachusetts equal those built by the mixing method. *Il Eng Rec* 71:608-10 My 15 '15
- Traffic and the methods and cost of road maintenance in Massachusetts and a comparison with English and French conditions. W. D. Solier. Eng & Contr 42:607-12 D 30 '14; Same cond. Eng N 72:1036-8 N 19 '14; Same cond. Muncie J 37:956-7 D 31 '14

Michigan

- Surveys and construction plans for trunk line road construction in Michigan. *Il diags Eng & Contr* 43:162-7 F 24 '15

Minnesota

- Minnesota road work statistics for 1914. Eng & Contr 44:4-5 J 7 '15

Mississippi

- Methods and cost of gravel road construction in a road improvement district in Lowndes county. *Il Eng & Contr* 42:301-2 S 23 '14
- Methods and cost of road work in district number two of Lowndes county, Mississippi. *Il Good Roads* n 9:91-3 Mr 6 '15

New Jersey

- Costly road. Eng N 73:1049-50 My 27 '15
- Making a road up the Palisades. *Il plan Eng N* 74:998-1000 N 18 '15
- Roadway up the Palisades. *Il Muncie J* 37:949-53 D 31 '14

New Mexico

- Road construction in solid rock side hill, New Mexico. diag Eng & Contr 43:504 Je 2 '15

Roads—Continued

New York

- Alpine roadbuilding in the Hudson river valley. *Il Eng N 74:1025-6 N 25 '15*
 Construction and maintenance of New York state highways. A. H. Blanchard. *Sch Mines Q 30:147-53 Ja '15*
 Engineering investigation of New York highway work. *Eng N 73:787-8 Ap 22 '15*
 New York highway work. *Munic J 38:423-5 Ap 1 '15*
 Storm King highway, New York. H. E. Breed. *Il map Eng N 74:721-4 O 14 '15*
 Storm King road a shelf blasted in mountain-side 400 feet above the Hudson. *Il diags Eng Rec 71:193-3 F 13 '15*

Ohio

- Brick roads and streets. J. Laylin. *Munic Eng 48:10-15 Ja '15*; Same, with discussion. *Good Roads n s 9:58-60 F 6 '15*
 Highway construction in Ohio; details of work contemplated in 37 counties. *Eng & Contr 43:sup22-3 Ap 14 '15*

Oregon

- Columbia highway in Oregon. H. L. Bowby. *Il Eng N 73:62-4 Ja 14 '15*
 Dry masonry walls for highway embankments. *Il Eng Rec 70:687 D 28 '14*
 Oregon's state highways. H. M. White. *Il Munic J 39:349-52 S 2 '15*
 Road improvement in Multnomah county, Oregon. *Il Good Roads n s 10:141-4 S 4 '15*

Pennsylvania

- Equipment and methods used on a state aid road contract in Pennsylvania. *Il Good Roads n s 10:79-80 Ag 7 '15*
 Pennsylvania builds concrete road as object lesson. *Il Eng Rec 72:530-1 O 30 '15*

Philippine Islands

- Philippine road built at high level to escape flood damage. *Il map Eng Rec 72:204-6 Ag 28 '15*
 Road system of Batangas province, Philippine Islands. *Il Good Roads n s 9:106-7 Mr 6 '15*

Texas

- Highway system of Tarrant county, Texas. *Il Good Roads n s 9:136-7 Ap 3 '15*
 Macadam road construction in Texas. J. F. Witt. *Il Eng & Contr 42:335 S 30 '14*

United States

- County roads to be constructed, 1915; tabulation. *Munic Eng 48:257-61 Ap '15*
 Data concerning highway construction. *Munic J 38:432-3 Ap 1 '15*
 Mileage of good roads in the United States. *Munic J 38:435-6 Ap 1 '15*
 Notes from state highway departments. *Munic J 38:429-31 Ap 1 '15*
 \$108,191,774 for roads in 1914. J. E. Schipper. *map Automobile 33:139-42 Jl 23 '15*
 Review of road work done in the several states in 1914 and that proposed for the current year. *Good Roads n s 10:5-18 Jl 3 '15*
 Review of road work in the United States during the present year and forecast of work in 1915. *Good Roads n s 8:227-33 D 5 '14*
 Roadway surfaces of state aid roads. F. F. Rogers. *Eng & Contr 44:281-3 O 13 '15*; Same. *Good Roads n s 10:203 O 2 '15*

Virginia

- Methods and cost of constructing a mountain road system in Wise county, Virginia. W. F. Cocke. *Il map Eng & Contr 43:341-4 Ap 14 '15*
 Sand-clay road construction in Virginia. F. D. Henly. *Il Eng & Contr 42:593-4 D 23 '14*

Washington

- Brick highways in King county, Washington. F. W. Allen. *Il diags Munic J 37:795-9 D 3 '14*
 Washington's state highways and highway department. W. R. Roy. *Il Munic J 39:348-9 S 2 '15*

Wisconsin

- Organization and standards of the Wisconsin highway commission. *Il diags Eng & Contr 42:318-403 O 28 '14*

Roads, Bituminous

- Bitulitic pavement and Warrenite roadway. G. H. Perkins. *Il Boston Soc C E J 1:119-31 Mr '14*
 Bituminous macadam roads in Rhode Island. L. W. Patterson. *Munic Eng 47:437-41 D '14*; Abstract. *Eng Rec 71:77-8 Ja 18 '15*
 Bituminous penetration roads in Massachusetts equal those built by the mixing method. *Il Eng Rec 71:608-10 My 15 '15*
 Bituminous road construction; committee report to Am. Soc. C. E. *Munic J 38:285-8 Mr 4 '15*; Excerpt (Definitions of terms). *Eng & Contr 43:278-80 Mr 24 '15*
 Kentucky rock asphalt road. G. D. Crain, jr. *Munic J 39:355-6 S 2 '15*
 Sand-asphalt may solve Florida road problem. C. E. Foote. *Il Eng Rec 71:822-3 My 15 '15*
 Sheet asphalt for Florida roads. G. L. Watson. *Il Munic J 39:503-8 S 30 '15*
 Types of bituminous construction. F. P. Smith. *Munic Eng 49:168-70 N '15*; Same. *Munic J 39:652-5 O 28 '15*; Summary. *Good Roads n s 10:285 N 27 '15*

See also Pavements, Bituminous

Roads, Brick

- Brick and concrete country roads. *Munic J 39:361-2 S 2 '15*
 Brick highways in King county, Washington. F. W. Allen. *Il diags Munic J 37:795-9 D 3 '14*
 Brick monolithic construction of county highways. R. L. Bell. *Il Eng & Contr 44:268-70 O 6 '15*; Same cond. (Illinois finds new mortar bed an improvement) *Eng Rec 72:453-4 O 9 '15*
 Brick pavement on old gravel road foundation for portion of the Lincoln highway. F. A. Churchill. *Eng & Contr 43:546 Je 16 '15*
 Brick road built monolithic at Paris, Ill. W. T. Blackburn. *Il Eng Rec 72:54-5 Jl 10 '15*
 Brick road construction in Florida. W. P. Blair. *Eng Rec 71:691-2 My 29 '15*
 Brick road construction upon a sand base in Hillsborough county, Florida. *Il Eng & Contr 44:333-6 O 27 '15*
 Brick road on machine-leveled subgrade. *Eng Rec 71:209 F 13 '15*
 Brick roads and streets. J. Laylin. *Munic Eng 48:10-15 Ja '15*; Same, with discussion. *Good Roads n s 9:56-60 F 6 '15*
 Concrete and brick as paving materials on Illinois highways. H. E. Bilger. *Eng & Contr 43:254-5 Mr 17 '15*
 Features of brick road construction in Illinois. R. L. Bell. *Il Eng & Contr 43:159-60 F 17 '15*
 Misuse of a good paving material is detrimental to Florida road development. C. E. Foote. *Il Eng Rec 71:452-3 Ap 10 '15*
 New type of brick road construction. *Il Munic Eng 49:57-8 Ag '15*
 Ohio uses cement-sand support for brick pavement. D. Moomaw. *Eng Rec 72:455 O 9 '15*
 Program of permanency on the Pacific highway. A. P. Denton. *Il Munic Eng 49:30-2 Jl '15*
 Proposed construction to reduce the cost of brick roads. J. S. Tucker. *Eng & Contr 43:374-5 Ap 28 '15*; Discussion. H. E. Bilger; J. I. Tucker. *43:406-7 My 5 '15*
 Reducing the cost of brick roads in Illinois. H. E. Bilger. *Eng N 73:696-7 Ap 8 '15*
 Revised cross-sections for Illinois roads. H. E. Bilger. *Il Eng N 74:584-7 S 23 '15*
 Rigid bed eliminates noise and subsurface pockets. F. A. Churchill. *Eng Rec 72:455-6 O 9 '15*

See also Pavements, Brick

Roads, Concrete

- Aggregate mechanically handled from pit to road. *Il Eng Rec 72:133-4 Jl 21 '15*
 Brick and concrete country roads. *Munic J 39:361-2 S 2 '15*
 California concrete road; construction methods. J. B. Woodson. *Munic J 38:421-2 Ap 1 '15*

Roads, Concrete—Continued

- California highway commission's work. A. B. Fletcher. *Il Munic J* 39:352-4 S 2 '15
- California state highways. A. B. Fletcher. *Il Good Roads* n s 10:119-26 S 4 '15
- Combination concrete road and flood channel. Los Angeles county, Calif. R. Bennett. *Il diags Eng N* 73:42-3 Ja 7 '15
- Concrete and brick as paving materials on Illinois highways. H. E. Bilger. *Eng & Contr* 43:254-5 Mr 17 '15
- Concrete base construction on California state highways. J. B. Woodson. *Eng & Contr* 42:235 S 2 '14
- Concrete material tables have saved money on road work. *Eng Rec* 72:307 Ag 14 '15
- Concrete materials tested in a Jones-Talbot rattle. *Eng Rec* 71:390 Mr 27 '15
- Concrete road at Winnetka, Ill. S. E. Bates. *Il Munic J* 39:429-30 S 16 '15
- Concrete road building in cold weather requires precautions. *Eng Rec* 72:641-2 N 20 '15
- Concrete-road building with small concrete mixers. *Il Eng N* 72:1162 D 10 '14
- Concrete road with a single crack in 4 1/4 miles the result of careful construction on Connecticut turnpike. *Il Eng Rec* 71:480-2 Ap 17 '15
- Concrete roads and frost action. A. M. Lovis. *Eng & Contr* 43:367 Ap 21 '15
- Concrete roads and frost action. S. T. Morse. *Eng & Contr* 43:436 My 13 '15
- Concrete roads; with discussion. H. J. Kuelling. *Good Roads* n s 9:68-70 F 6 '15; Same cond. *Eng Rec* 70:665 D 19 '14; Same cond. *Concrete Cem* 6:96 F '15; Abstract. *Munic J* 38:438-4 Ap 1 '15
- Construction and maintenance details of concrete road work in Wayne county, Michigan, in 1914. *Il Eng & Contr* 42:457-60 N 11 '14
- Construction methods and costs and service records for concrete roads in Ohio. *Eng & Contr* 42:160-3 Ag 12 '14
- Construction of concrete roads in Milwaukee county, Wisconsin, in 1914. H. J. Kuelling. *Il map Concrete Cem* 6:70-4 F '15
- Difficult construction of concrete road; the Cedar Point automobile road. *Il Munic Eng* 48:810-12 My '15
- Economical handling of a large concrete road contract. *Il Concrete Cem* 7:97-8 S '15
- Estimating the cost of concrete roads in Milwaukee county, Wisconsin, and methods and cost of maintenance. H. J. Kuelling. *Eng & Contr* 43:207-8 Mr 3 '15
- Excavating aggregates with drag line and hauling by motor truck on Indiana concrete road work. S. E. Bates. *Il plans Eng & Contr* 44:331-3 S 22 '15
- Financing and building a county highway. *Il Munic Eng* 48:323-22 Je '15
- Gasoline locomotive hauls material trains for concrete highway. *Il Eng Rec* 71:152 Ja 30 '15
- How do you man your paving mixer? *diags Eng Rec* 72:240 Ag 21 '15
- Hydrated lime in road concrete. *Eng N* 73:503 Mr 11 '15
- Improvement of Sheridan road in Highland Park, Ill. S. E. Bates. *Il Munic Eng* 48:359-60 Je '15
- Investigation of the concrete road-making properties of Minnesota stone and gravel. C. F. Shoop. *Il Minn U Bul* 2:1-55 '15
- Investigation to determine the relative resistance to wear of concrete made of different aggregates. C. F. Shoop. *Il Eng & Contr* 44:144-7 Ag 25 '15
- Kinks in concrete road and pavement construction. C. D. Franks. *Il diags Eng & Contr* 43:114-18 F 10 '15; Excerpt (Supply and use of water in concrete road building). *Munic Eng* 48:121-4 F '15
- Materials for concrete road delivered in industrial cars from central plant. *Il Eng Rec* 71:295-6 Mr 6 '15
- Method of carrying concrete road over trenches with soft backfill. *Concrete Cem* 7:69 Ag '15
- Method of constructing concrete road in freezing weather. H. C. Campbell. *Il Eng & Contr* 44:348 N 3 '15
- Methods and cost of concrete road construction by day labor under the supervision of the Illinois highway commission. *Eng & Contr* 43:118-20 F 10 '15
- Methods and cost of constructing a bituminous carpet on concrete roads. F. W. Whitlow. *Eng & Contr* 42:569-70 D 16 '14
- Methods and cost of constructing a concrete road in LaSalle co., Illinois. B. H. Piepmeyer. *Il Eng & Contr* 43:109-10 F 3 '15
- Methods and cost of constructing a rolled concrete road in Washington. H. L. Bowiby. *Il Eng & Contr* 43:203-8 Mr 3 '15
- Methods and cost of constructing nine miles of concrete state road in California. J. B. Woodson. *Eng & Contr* 43:107-9 F 3 '15
- Methods, organization and equipment for concrete road construction. C. H. Moorefield and J. T. Voshell. *diags Eng & Contr* 44:168-70 S 1 '15
- New and different specification for concrete roads. W. W. Crosby. *Eng & Contr* 44:384-5 N 17 '15
- Notes on concrete road construction. *Eng N* 73:77 Ja 14 '15
- Novel concrete road plan for curve on grade. *Il Munic Eng* 49:69 Ag '15
- Old National road and its reconstruction. C. H. Moorefield. *Il Eng & Contr* 43:227-9 Mr 10 '15
- Papers, reports and discussions on concrete roads presented at 11th annual convention of American concrete institute. *Concrete Cem* 6:113-15 Mr '15
- Pennsylvania builds concrete road as object lesson. *Il Eng Rec* 72:530-1 O 30 '15
- Recent improvements in the methods of handling materials in concrete road construction. *Eng & Contr* 43:113-14 F 10 '15
- Reinforcing and sub-grade drainage to eliminate cracking in concrete roads. J. W. Mueller; A. M. Lovis. *Concrete Cem* 7:111-13 S '15
- Resurfacing an old concrete road. *Il Munic J* 37:955-6 D 31 '14
- Revised cross-sections for Illinois roads. H. E. Bilger. *Il Eng N* 74:584-7 S 23 '15
- Road engineer experiments with hydrated lime. *Eng Rec* 71:798-9 Je 26 '15
- Rolling wet concrete for roads. *Il Eng N* 73:829 Ap 29 '15
- Steel side and curb forms. *Il Munic Eng* 49:83 Ag '15
- Study of a water supply by pumping for concrete road construction. *plan Eng & Contr* 43:467-8 My 26 '15
- Testing aggregates for concrete roads built by the New York highway commission. H. S. Mattimore. *Eng & Contr* 43:294-6 Mr 31 '15; Same cond. *Munic Eng* 43:131-3 F '15; Excerpt (Sand for concrete pavements). *Munic J* 38:420-1 Ap 1 '15
- Use of hydrated lime in concrete roads. L. N. Whitcraft. *Good Roads* n s 10:160-1 S 4 '15
- Wayne co. (Mich.) roads. F. F. Rogers. *Concrete Cem* 6:96-7 F '15

See also Pavements, Concrete

Cost

- Daily cost-data sheets on concrete road construction. *Eng Rec* 71:676 My 29 '15
- Detailed cost of a recently completed concrete road near Aurora, Illinois. *Eng & Contr* 42:304 S 23 '14
- Estimating the cost of concrete roads in Milwaukee county, Wisconsin, and methods and cost of maintenance; abstracts. H. J. Kuelling. *Eng & Contr* 43:207-8 Mr 3 '15; *Concrete Cem* 6:114-15 Mr '15
- Hauling gravel with motor truck and trailers; a service test in concrete road construction. *Il Eng & Contr* 42:536-6 D 9 '14
- Method of estimating the cost of a concrete road. H. J. Kuelling. *Eng & Contr* 43:446-7 My 19 '15
- Methods and cost of constructing a concrete road in LaSalle co., Illinois. B. H. Piepmeyer. *Il Eng & Contr* 43:109-10 F 3 '15
- Methods and cost of constructing nine miles of concrete state road in California. J. B. Woodson. *Eng & Contr* 43:107-9 F 3 '15
- 1915 practice of prominent builders of concrete roads. *Concrete Cem* 7:39-41 J1 '15
- Washed aggregate and machine-finished surface, features of Michigan concrete road. *Il Eng Rec* 72:168-9 Ag 7 '15

Roads, Earth

- Earth and gravel road construction and maintenance. I. O. Baker. *Good Roads* n s 9:70-3 F 6 '15
 Rebuilding rural roads in the southern states. G. B. Buchanan. *Eng N* 74:446-8 S 3 '15
 Subdrainage of earth roads. *Eng N* 73:828-9 Ap 23 '15
 Unsatisfactory experience with sand-clay roads. S. H. Lea. *Eng N* 73:873 My 6 '15

Roads, Experimental

- Maintenance cost system used on U. S. experimental road. E. W. James and C. S. Reeve. *Eng Rec* 71:418-21 Ap 3 '15
 Philadelphia's test road. *Munic J* 38:772-4 Je 3 '15
 Road and boulevard construction in Philadelphia. *Eng* 48:243-5 Ap '15

Roads, Gravel

- Building gravel roads in Logan county, Illinois. J. L. Miller. *Eng N* 72:1265-6 D 24 '14
 Construction of gravel roads in Iowa. T. R. Agg. *Eng & Contr* 42:217-18 Ag 26 '14
 Demonstration of gravel road construction using motor truck and road grader. R. L. Morrison. *Eng & Contr* 44:205 S 15 '15
 Experiment with gravel roads in Iowa. T. R. Agg. *Eng Rec* 72:664-6 N 27 '15
 Methods and cost of gravel road construction in a road improvement district in Lowndes county, Mississippi. *Eng & Contr* 42:301-2 S 23 '14
 Methods and cost of road work in district number two of Lowndes county, Mississippi. *Eng* 43:376-7 Ap 28 '15
 Methods of constructing and maintaining gravel roads in Ohio. A. H. Hinkle. *Eng & Contr* 43:376-7 Ap 28 '15

Roads, Macadamized

- Cost of macadam object lesson roads in North Carolina. *Eng & Contr* 43:544-5 Je 16 '15
 Method of reconstruction of old macadam roads. D. T. Brown. *Eng & Contr* 44:202-3 S 15 '15
 Methods and costs of building a macadam road using an industrial railway. R. P. Mason. *Eng & Contr* 43:322-3 Ap 7 '15
 Resurfacing old macadam roads with Warrentite. *Eng* 43:322-3 Ap 7 '15
 Resurfacing water bound macadam. S. C. Corson. *Munic J* 38:422-3 Ap 1 '15
 Strengthening the macadam road to meet modern traffic. *Munic Eng* 48:313-4 My '15
 Traffic limits of various types of pavements. W. D. Washington. *Eng & Contr* 42:403-4 O 28 '14

Roads, Mountain. See Mountain roads**Roads, Oiled**

- Diagram for computing quantity of road oil required. *Eng & Contr* 44:71 J 28 '15
 How oiled earth roads are built in Kansas. W. S. Gearhart. *Eng Rec* 72:193 Ag 14 '15
 Iowa experiments with oil on dirt roads. *Eng Rec* 72:15-16 J 3 '15
 Method of applying oil for dust prevention. *Eng & Contr* 43:435-6 My 12 '15
See also Road oilers; Road oils; Street oiling

Roads, State

- Gains made by state management of road construction and maintenance. J. E. Pennybacker. *Eng Rec* 72:189-90 Ag 14 '15
See also Roads, subheads California, Idaho, and names of other states

Roads, State aid

- Miles of state aid roads; table. *Eng & Contr* 44:282 O 13 '15; Same. *Good Roads* n s 10:203 O 2 '15
 Organization for and methods and cost of state aid road construction in Alabama. *Eng & Contr* 42:506-8 N 25 '14

Roads, Tarred

- Design and construction of bituminous surfaced roads in England. W. H. Maxwell. *Eng & Contr* 42:255-60 S 9 '14
 Effect of tarred roads upon trees. *Sci Am* 112:844 Ap 10 '15
 Methods of applying tars for dust prevention. *Eng & Contr* 43:445-6 My 19 '15
 Resurfacing water bound macadam. S. C. Corson. *Munic J* 38:422-3 Ap 1 '15

Simply constructed tar-macadam road. *Eng N* 74:81-2 J 18 '15.

Roasters. See Furnaces, Metallurgical

Robbia, Luca della, 1399-1482
 Luca della Robbia, by A. Marquand. *Review. Arch Rec* 37:378-80 Ap '15

Robins, Thomas, 1868-

Sketch. *por Eng M* 50:219 N '15

Rochester, New York

Rapid transit

- Decision in Rochester fare case. *Elec Ry J* 45:439-40 F 27 '15
 Rochester train operation; operation of motor and trailer combinations has relieved traffic congestion in downtown section. *diags Elec Ry J* 45:752-3 Ap 17 '15
 Telephone dispatching in city service. E. E. Strong. *Eng Ry J* 45:385-7 My 8 '15

Rock drills

- Air and electric rock drills. *Elec R & W Elec'n* 67:480 S 11 '15
 Churn-drilling costs, Sacramento hill, Arizona. A. Notman. *Eng* 43:321 Ap 7 '15
 Comparative methods and costs of preparing rock for steam shovels. C. C. Phelps. *Eng & Contr* 43:321 Ap 7 '15
 Fort Wayne electric rock drill. C. Jackson. *Eng* 43:321 Ap 7 '15
 Handling drill steel at the Quincy mine. L. H. Goodwin. *plan Eng & Min J* 99:16 Ja 2 '15
 How the repair man sees it. H. E. Scott. *Eng & Min J* 100:800-1 N 13 '15
 How to choose rock drills. J. R. McFarland. *Eng & Min J* 100:719-23 O 30 '15
 Jack-hammer successfully run with steam on sewer trench job. C. J. Phelps. *Eng Rec* 71:278 F 27 '15
 Method of rock drilling for dredge excavation in land drainage. C. N. Olson. *diag Eng & Contr* 44:151 Ag 25 '15
 Modern rotary drill. H. R. Hughes. *Eng* 43:322-3 Ap 7 '15
 Same cond. *Eng N* 73:928-9 My 13 '15; *Abstract Ind Eng* 15:59-60 F '15; *Abstract. Colliery* 35:522 My '15; *Discussion. Am Inst Min E Bul* 101:1162 My '15
 New bit for rotary drilling. *Eng & Contr* 43:525 Je 9 '15

Pneumatic drill-column. S. V. Bergh. *diag Eng & Min J* 99:14 Ja 2 '15

Quarrying with air hammer drills on scaffolds. C. C. Phelps. *diags Eng & Min J* 99:903 My 22 '15

Record of Temple-Ingersoll drills on the Mesa-bl range. *Eng & Min J* 98:1042-3 D 12 '14

Rock-drill nicknames. J. R. McFarland. *Eng & Min J* 99:860-1 My 15 '15

Rock drills in mining. L. O. Kellogg. *Eng* 43:322-3 Ap 7 '15

Subaqueous rock excavation. C. C. Phelps. *Eng* 43:322-3 Ap 7 '15

Testing and application of hammer drills. B. F. Tilson. *diags Am Inst Min E Bul* 98:505-28 F '15; *Excerpt (How the drill bit breaks the rock). Eng & Min J* 99:573-4 Mr 27 '15; *Discussion. Am Inst Min E Bul* 101:1197-1201 My '15

Union portable gasoline churn drill. *Eng & Min J* 99:491-2 Mr 13 '15

Western Electric hammer drill. *diag Eng & Min J* 100:638 O 16 '15

See also Drilling and boring (earth and rocks); Mining machinery

Failures

Failure and heat treatment of drill steel. S. V. Bergh. *Eng & Min J* 99:612-14 Ap 3 '15

Failure of hollow drill-steel. T. E. Sturtevant. *Eng & Min J* 99:579 Mr 27 '15

Manufacture

Motor drive in a rock-drill factory. F. D. Burr. *Eng* 43:322-3 Ap 7 '15

Sharpening

See Sharpening

Rock drills—Continued

Testing

Tests of rock drills at North Star mine, California. R. H. Bedford and W. Hague. *Il Am Inst Min E Bul* 92:1807-16 Ag '14; Same cond. Eng & Min J 98:255-7 Ag '14; Same cond. Eng Rec 70:374 O 3 '14; Same cond. Eng & Contr 42:483-5 N 11 '14; Excerpt. Eng & Min J 98:439 S 5 '14; Discussion. *Am Inst Min E Bul* 95:2750-1 N '14

Rock dust

Methods of preventing and limiting explosions in coal mines. G. S. Rice and L. M. Jones. *diags pls U S Bur Mines Tech Pa* 84:1-42 '15

Pulmonary disease among miners in the Joplin district, Missouri, and its relation to rock dust in the mines. A. J. Lanza and E. Higgins. *Il U S Bur Mines Tech Pa* 105:22-47 '15; Abstract. Eng & Min J 99:331-3 F 13 '15

Respirators vs. water sprays. Eng & Min J 100:856-7 N 20 '15

Rock-dust sampler. O. Ruhl. *Il Eng & Min J* 99:238 Ja 30 '15

Rock Island & Pacific railroad. See Chicago, Rock Island & Pacific railroad

Rock-sounding rig. *Il diags Eng N* 73:633-4 Ap 8 '15

Rocket camera. See Photography, Military

Rockhouses

Shaft-rockhouse practice in the copper country. L. H. Goodwin. *Il diags Eng & Min J* 99:1061-6, 1107-10; 100:7-12, 53-7 Je 19-Jl 10 '15

Rocks

Sulphide-bearing rocks from Litchfield, Conn. E. Howe. *diags Econ Geol* 10:330-47 Je '15

See also Geology; Granite; Graywacke; Limestone; Mineralogy; Shale

Rocks, Igneous

Alumite and pyrophyllite in triassic volcanics at Kyuquot Sound, British Columbia. C. E. Clapp. *Econ Geol* 10:70-88 Ja '15

Oil in an igneous rock. J. A. Udden. *Econ Geol* 10:582-5 S '15

Rocky mountain national park

Women's work in conservation. Mrs. J. D. Sherman. *Am For* 21:541-2 My '15

Rocky mountains

Origin of the Rocky mountains. S. J. Schofield. *Il Sci Am S* 79:88-9 F 6 '15

Parks in the Canadian Cordillera. J. A. Allan. *Il Sci Am S* 80:360-2 D 4 '15

Rods

Continuous casting machine. R. C. Patterson. *diag Metal Ind n s* 13:254-5 Je '15

Continuous rod casting machine. *Il Sci Am* 113:185-4 Ag 21 '15

Continuous rod-casting process; construction and operation of a casting machine designed to simplify the manufacture of rods and wire. E. K. Hammond. *Il diag Mach* 21:765-7 My '15

Mellen rod-casting machine. R. C. Patterson, Jr. *Il Am Inst Min E Bul* 101:919-25 My '15; Same. *Iron Age* 95:986-8 My 6 '15; Same. *Iron Tr R* 57:446-7+ S 2 '15; Abstract. *Am Soc M E J* 37:346-7 Je '15; Abstract. *Eng M* 49:593-4 Jl '15

Torsional strengths of guy anchor rods. T. Croft. *diags Elec W* 55:1607-9 Je 19 '15

Roentgen rays. See X rays

Roentgenology. See X rays

Roller bearings

American lineshaft hanger bearing. *Il Mach* 21:1024 Ag '15

Application of roller bearings to mine-car haulage. P. N. Case. *diags Eng & Min J* 100:144-6 Jl 24 '15

Double-head, automatic for finishing roller bearing rollers. *Il diag Mach* 21:965 Ag '15

Making roller bearings. *Il Iron Age* 95:127 Jl 15 '15

Press tools for making a roller bearing cage. *Il diags Mach* 21:547-9 Mr '15

Roller-bearing trolley wheels. *Il Elec Ry J* 45:996-7 My 22 '15

Roller journal bearing. *diags Ry Age (Mech ed)* 89:141-2 Mr '15

Roller skating

Regulation

Regulation of roller skating on streets and sidewalks. A. L. Bostwick. *Munic J* 38:658 My 13 '15

Rolling

Theory of resistance to rolling of a hard body over a plastic surface; abstract. B. B. Schultz. *Am Soc M E J* 37:478-9, 555-8 Ag-S '15

Rolling mills

Buying power for the rolling mill. B. Wiley and W. Sykes. *Iron Tr R* 57:530-3 S 16 '15

Cambria steel company's new bar mill. *Il diags Iron Age* 95:1002-4 My 6 '15

Cold rolling mills made in America. *Il Iron Tr R* 56:520-4 Mr 11 '15

Development of the merchant rolling mill. J. R. George. *Il diags Iron Tr R* 56:1125-8+ Je 3 '15; Same. *Iron Age* 95:1282-6 Je 10 '15

Device for changing rolling-mill rolls. *diag Iron Age* 95:133 Ja 14 '15; *Iron Tr R* 56:178 Ja 21 '15

Displaced volume and power in rolling mills; identity of results obtained from two commonly used equations. F. Denk. *Iron Age* 96:283-90 Ag 5 '15

Efficiency of blooming mills. C. L. Kuderer. *Iron Tr R* 57:489 S 9 '15

Electric driven mill at Warren, Ohio. *diags Iron Tr R* 56:868-70 Ap 29 '15

Electrical practice in steel mills. D. M. Petty. *Iron Tr R* 57:941-2 N 11 '15

Features of central station power. E. Chearown. *Iron Tr R* 57:583-4 S 23 '15

Great Northern reclamation plant. *Il Ry Age (Mech ed)* 89:805-8 Je '15; Same. *Ry Age* 58:967-70 My 7 '15

Heavy electric reversing mills. W. Sykes. *Il Iron Tr R* 55:1181-3+ D 24 '14

How special shapes are rolled. E. C. Kreutzberg. *Il Iron Tr R* 56:123-6 Ja 14 '15

Hydraulic rolling mill operating valve. *diag Iron Age* 96:811 O 7 '15

Installing rolling-mill anchor bolts. A. Connely. *diags Iron Age* 96:296-7 Ag 5 '15

Large steel-mill motor drive. *Il Elec W* 56:1089-90 N 13 '15

Low-pressure turbine at the Carpenter steel mill. *Il plan Power* 42:74-5 Jl 20 '15

Mill for cold rolling steel; plant of the Schwartz-Herrmann steel works for rolling band steel. *Il Iron Age* 95:899 Ap 22 '15

Modern plant for rolling iron: St. Louis screw co. H. C. Bstep. *Il diags plans Iron Tr R* 57:82-8+ Jl 8 '15

New rolling mill near Salt Lake City to utilize iron and steel scrap. *Il plan Iron Age* 96:192-3 Jl 22 '15

Pennsylvania's rail and structural mill at Steelton. *Il plan Iron Age* 96:817-22 S 16 '15

Pointers on rail mill practice. E. Slandford. *Iron Tr R* 57:307-9+ Ag 12 '15

Puppe universal mill. *diags Iron Age* 96:922-3 O 21 '15

Rapid reconstruction of old mill; remodeled plant of Mansfield sheet & tin plate co. R. V. Sawhill. *Il Iron Tr R* 56:817-19 Ap 22 '15

Rolling mill with steam turbine drive: plant of the Carpenter steel company. *Il plan Iron Age* 94:1221-4 N 26 '14; Same. *Iron Tr R* 55:997-1000 N 26 '14; Same. *Power* 41:455-8 Mr 30 '15; Same cond. *Eng M* 48:591-3 Ja '15

Rolling mill work. *Iron Age* 95:102 Ja 7 '15

Rolling mills for cold metal. *Iron Age* 95:1115 My 20 '15

Rolling strip steel in New Jersey; new plant of Schwartz-Herrmann steel works. C. J. Stark. *Il Iron Tr R* 56:779-80 Ap 15 '15

Steam turbine mill drive; with discussion. J. D. Berg. *Il diags Eng Soc W Pa* 30:778-803 N '14; Abstract. *Am Soc M E J* 37:238-9 Ap '15

Steel mill castings: use of manganese steel in heavy rolling mill equipment. G. Tripp. *Il Iron Tr R* 56:49-53 Ja 7 '15

Steel mill controllers from the operator's standpoint. J. N. Riggs. *Am Inst E E Pro* 34:715-22 My '15; Discussion. 34:2869-94 N '15

Temperatures in rolling steel rails. *Iron Age* 96:19-22 Jl 1 '15

Rolling mills—Continued

- Test of large reversing engine and rolling mill. K. Nibecker. *Il diag Eng Soc W Pa* 30:533-65 J1 '14; Abstract. *Am Soc M E J* 37:55-6 Ja '15; Discussion. *Eng Soc W Pa* 30:565-640, 804-8 J1, N '14
- Unusual roughing mill; a German three-high two-pass unit. B. Quast. *Il diag Iron Age* 96: 931 O 21 '15
- Variable-speed drives for rolling mills. K. A. Pauly. *Power* 42:527-8 O 12 '15; Abstract (Two control systems for steel-mill motor drives). *diag Elec W* 66:865-6 O 16 '15
- See also* Rolls (machinery); Steel works

Records

- Electrical repair record system; methods of National tube co. J. F. Kelly. *Iron Tr R* 56:1064-7 My 27 '15; Same cond. *Iron Age* 95:1070 My 13 '15; Discussion. *Iron Tr R* 56: 1067-9 My 27 '15
- Keep record of electrical repairs. G. E. Stoltz. *Iron Tr R* 56:987-9+ My 13 '15; Same cond. (Steel mill electric motors). *Iron Age* 95: 952-3 Ap 29 '15

Rolls (machinery)

- Mixture for chilled crusher rolls. W. J. Keep. *Foundry* 43:187 My '15
- Roll design for several sections. C. Holzweiler. *Iron Age* 94:1467-9 D 24 '14
- Successful roll operation. J. Humes. *Eng & Min J* 99:615-16 Ap 3 '15

Roman architecture. See Architecture, Roman**Rome, Ancient****Industry**

- Roman technics and industry in early Germany. *Sci Am S* 79:130 F 27 '15

Rome (city)

- American academy in Rome. C. G. La Farge. *Il Am Inst Arch J* 3:52-72 F '15

Architecture

- Villa Madama; text and measured drawings by Howard W. Germann. *Il Arch Rec* 86:500-10, 37:36-47 D '14-Ja '15

Roof flanges

- Developing pattern for roof flange and hood. *diags Metal Work* 84:283 Ag 27 '15
- Developing roof flange and plate pattern. *diags Metal Work* 84:335 S 10 '15

Roofing

- Accounting system for roofing business. E. B. Bourlier. *Metal Work* 83:39-42 Ja 1 '15
- Corrugated asbestos cement sheets for roofing and siding. *diags Eng & Contr* 44:214 S 15 '15; *Iron Age* 96:407 Ag 19 '15; *Ry Age* 59: 537 S 17 '15; *Ind Eng* 15:103-4 S '15; *Am Gas Light J* 103:220-1 O 4 '15
- Roofing materials in Kongo. *Metal Work* 83: 358 Mr 5 '15
- Sheet metal product selling campaigns. R. Danzer. *Metal Work* 83:42+ Ja 1 '15
- Shingle roofs and fire limits. W. B. Conant. *Munic J* 38:189-90 F 11 '15
- Terne plate and sheet metal for roofing. J. Troland; C. D. Puckett. *Metal Work* 83: 902-4 Je 18 '15
- Use of slate as a roofing material. J. C. Taylor. *Iron. Bldg Age* 37:46 Mr '15

Roofs

- Constructing galvanized iron silo roof. *diags Metal Work* 83:534-6 Ap 9 '15
- Detailed information on roof framing. *Bldg Age* 37:55-6 My '15
- Details of an unusual truss roof. J. Y. Duhlop. *diags Bldg Age* 37:62 J1 '15
- Eccentric heel joint of roof truss: solution of problem. E. H. Rockwell. *Eng N* 74:798-8 O 21 '15
- Framing a Mansard roof with dormers. O. B. Maginnis. *diags Bldg Age* 37:64-5 Ja '15
- Graphic method of detailing hip-rafter connections. C. L. C. Magee. *Eng Rec* 71:562-3 My 1 '15
- How a large truss roof was raised. J. F. Hobart. *Il Bldg Age* 37:26-30 My '15
- Laying galvanized corrugated roofing sheets. E. Stern. *diags Metal Work* 83:344-5 Je 11 '15
- Laying slates in putty. *Il Bldg Age* 37:34 S '15

- Metal flashings for slate or shingle roofs. *diags Metal Work* 84:299 S 3 '15
- Metal roof coverings in Galveston hurricane. C. D. Puckett. *Il Metal Work* 84:336 S 10 '15

- Method of laying standing seam roofing. *Metal Work* 83:497+ Ap 2 '15
- Moments at eccentric heel-joint of roof truss. C. W. Chassaing. *Eng N* 73:990 My 20 '15
- Reinforcement for the roof timbers of Westminster hall, England. F. Baines. *Eng & Contr* 42:172-5 Ag 19 '14
- Roof framing chart. J. J. Umbs. *Bldg Age* 37: 34-6 J1 '15
- Roof framing with the steel square. *Il Bldg Age* 37:45-8 N '15
- Roof framing with the steel square. D. P. Barry. *Bldg Age* 37:45-6 O '15
- Roof replacement in Superior, Wis. *diag Elec W* 65:792-3 Mr 27 '15
- Safe construction of church roof trusses. K. D. Schwendener. *Bldg Age* 37:52-3 Mr '15
- Three roofs furnish more dirt than 4½ miles of street. *Il Eng Rec* 71:583 My 29 '15
- See also* Building; Car roofs; Ceilings; Domes; Girders; Gutters (roof); Roofing; Scaffolding; Steel construction; Strains and stresses; Trusses

Roofs, Concrete

- Concrete roof for a root cellar. McCullough. *diags plan Bldg Age* 37:54-6 J1 '15
- Experiences with concrete in the republic of Panama. A. P. Cray. *Il diags Eng N* 73: 214-16 F 4 '15
- Long-span roof slab of concrete and tile; concrete top surface, large hollow tile, and two-way reinforcement. M. Miller. *Il Eng Rec* 71:516-17 Ap 24 '15
- Methods and costs of providing slopes for drainage on flat concrete roofs. A. M. Wolf. *diags Concrete Cem* 6:86-8 F '15

Rope

- Care and use of hoisting accessories: wire rope, manila rope, hooks, chains, accessories, lubrication of wire rope, strength of slings. *Mach* 21:297-8 D '14
- Electricity in twine and rope mills. *Il Elec R & W Elec'n* 67:551-4 S 25 '15
- Experiments to determine stresses in parts of rope falls. C. S. Adams. *Eng Rec* 72:425-6 O 2 '15
- Lateral friction of winding ropes; abstract. H. W. G. Halbaum. *Am Soc M E J* 37:351-2 Je '15
- Use and care of manila rope. F. E. Weise. *Eng & Contr* 44:345-6 N 3 '15
- See also* Knots and splices; Manila rope; Rope driving

Testing

- New rope-testing machine. *Il diag Eng N* 74: 173-3 J1 23 '15

Rope driving

- Transmitting power by rope drives. H. D. Jackson. *Il diag Power* 40:808-11 D 8 '14
- See also* Belting

Ropeways. See Cableways**Rotary converters**

- Converter station of Aluminum company of America, Maryville, Tenn. *Il Power* 41:776-7 Je 8 '15
- Feeder-tap resistance in rotary-converter practice. L. F. Crecelius; E. C. Baugher. *Elec Ry J* 45:799-800 Ap 24 '15
- 45,000-kw. synchronous converter substation of the Aluminum company of America at Massena Springs, N. Y. J. L. Burnham and R. C. Muir. *Il diag Gen Elec R* 18:873-8 S '15
- Motor-generators versus rotary converters. E. Friedlaender. *Power* 42:453 S 28 '15
- Parallel operation of frequency changers. G. H. Rettew. *diag Gen Elec R* 18:836-8 Ag '15
- Polarity reversal in synchronous converters. E. R. Shepard. *diags Elec W* 65:210-11 Ja 25 '15
- Practical notes on rotary converters. *Elec R & W Elec'n* 66:989 My 29 '15
- Protecting synchronous converters. plan *Pow-er* 42:171-2 Ag 3 '15

Rotary converters—Continued

- Recent improvements in single-phase rotary converters. V. A. Fynn. *Il Elec W* 66:1045-6 N 6 '15
- Same starting equipment for large and small machines. *Il plan Elec W* 65:420-1 F 13 '15
- Sixty-cycle rotary converters. Engineer 118: 538-9 D 4 '14
- Sixty-cycle rotary converters in series in 1500-volt service. *diags Elec Ry J* 45:583-4 Mr 27 '15
- Synchronous booster—converter for Dayton power and light company. *Il Elec R & W Elec'n* 66:1218 Je 26 '15
- Unusual experience with rotary converter. F. W. Swift. *diag Power* 41:97 Ja 19 '15
- Rotation of the earth. See **Earth—Rotation**
- Roundhouses**
- Best practices in engine house work. D. E. Barton. *Ry Age* (Mech ed) 89:133 Mr '15
- Big Bill Agnew and blue Monday. H. D. Wolcomb. *Ry Age* (Mech ed) 89:583-6 O '15
- Efficiency in a modern engine house. J. C. Murdock. *Ry Age* (Mech ed) 88:842-3 D '14
- Engine failures, their causes and cure. J. R. Anderson. *Ry Age* (Mech ed) 89:587-8 N '15
- Engine house organization. W. P. Huntley. *Ry Age* (Mech ed) 89:135-6 Mr '15
- Engine houses; principles of design; committee report of A. R. E. A. Eng & Contr 43: 300 Mr 31 '15
- Features of engine house design. B. Bird. *diags Ry R* 57:142-3 J1 31 '15
- Handling work reports at engine houses. J. E. Tefft. *Ry Age* (Mech ed) 89:31-2 Ja '15
- Modern concrete and brick roundhouse at Du Bois, Pa. *Il diag Ry Age* 58:1110-11 My 28 '15
- Reinforced concrete and brick roundhouse of the Buffalo, Rochester & Pittsburgh Ry., at Dubois, Pa. *diags plans Eng & Contr* 44: 66-9 J1 28 '15
- Reinforced-concrete roundhouse at Dubois. *Il diags Eng Rec* 71:167-9 F 6 '15
- Roundhouse efficiency. *Ry Age* (Mech ed) 89: 423-5 Ag '15; Same cond. *Ry Age* 59:156-7 J1 23 '15; Abstract. *Ry R* 57:119 J1 24 '15
- Smoke exhaustor for the St. Paul engine house at Chicago. W. S. Lacher. *Il diags Ry Age* 58:98-9 Ja 15 '15
- Suggestions for a properly kept roundhouse. W. U. Appleton. *Ry Age* (Mech ed) 89:187-8 Ap '15
- Training engine house foremen. R. G. Gilbride. *Ry Age* (Mech ed) 89:81 F '15
- Routing systems**
- Eisemann's train-dispatcher system. J. E. Schipper. *Il plans Automobile* 32:580-5 Ap 1 '15
- New Taylor-Wharton plant with diagram of layout. *Il Iron Tr R* 57:794-7+ O 21 '15
- Routing—schedule and despatch. G. D. Babcock. *Il Ind Eng* 14:427-31 N '14
- Shop system of the American machine & foundry co. E. K. Hammond. *diags Mach* 21: 448-50 F '15
- Rubber**
- Details of rubber embargo lifting. Horseless Age 35:222-3 F 17 '15
- Electricity in rubber mills. *Il Elec R & W Elec'n* 66:578-9 Mr 27 '15
- Electricity in the rubber industry. E. W. Pilgrim. *Am Inst El El Pro* 34:3028-33 D '15
- Factors involved in motor application, with particular reference to the rubber industry. A. F. Lewis. *Am Inst El El Pro* 34:2666-74 N '15
- Hysteresis tests for rubber. E. L. Davies. *J Ind & Eng Chem* 6:935-6 D '14
- Instruments to test rubber. *Il Automobile* 33: 65 J1 8 '15
- Measuring the hardness and elasticity of rubber. *Il Sci Am* 113:236 S 11 '15
- Measuring the hardness of rubber. *Il Iron Age* 95:1393 Je 24 '15
- Pontianak (Jellutong) rubber resin. C. Ellis and A. A. Wells. *J Ind & Eng Chem* 7:747-50 S '15
- Recent methods for the determination of total sulphur in rubber. J. E. Tuttle and A. Isaacs. *U S Bur Stand Tech Pa* 45:1-16 '15; Same. *J Ind & Eng Chem* 7:658-63 Ag '15
- Reclaimed rubber. Engineer 120:428-9 N 5 '15

- Specification of vulcanized rubber gum by volume and its determination by a new solution method. F. Gottsch. *Il J Ind & Eng Chem* 7:582-6 J1 '15
- Testing of rubber goods. *Il diags U S Bur Stand Circ* 38:1-89 '15
- Vulcanization experiments on plantation para rubber, the cause of variability; abstract. B. J. Eaton and J. Grantham. *Am Soc M E J* 87:726-6 D '15

Rubber, Artificial

- Artificial production of caoutchouc. F. W. Hinrichsen. *Sci Am S* 79:399-400 Je 19 '15
- Potatoes and salt. R. Chauvenet. *Met & Chem Eng* 12:741-2 D '14
- Present status of synthetic production. F. W. Hinrichsen. *Horseless Age* 36:145+ Ag 1 '15

Rubber, Substitutes for

- Rubber substitute; coal tar chief ingredient of product. *Automobile* 32:1143 Je 24 '15

Rubidium

- Potential of the rubidium electrode. G. N. Lewis and W. L. Argo. *diag Am Chem Soc J* 37:1938-90 S '15

Runes

- How we got our alphabet; earlier English and Irish alphabets. W. Rice. *Inland Ftr* 55: 83-4 Ap '15

- Rural architecture. See **Bungalows; Country houses; Farm buildings**

- Rural electric service. See **Electric service, Rural**

Rural schools

- Rural school and the hookworm disease. *Il Sci Am S* 79:164-5 Mr 13 '15

Ruskin, John, 1819-1900

- Architectural draughtsmen. H. Winslow. *Il Am Inst Arch J* 3:406-20 O '15

Russia

See also **Railroads—Russia**

Army

- Bath trains of the Russian army. *Il Sci Am* 113:13 J1 3 '15; Same. *Metal Work* 84:363-4 S 17 '15

Commerce

- American opportunity for Russian business. D. L. Hough. *map Iron Age* 95:616-17 Mr 18 '15

- Engineering openings in Russia. *Sci Am* 112: Ap 3 '15

- Russia and her trade. Engineer 119:173-4 F 19 '15

- Russia and its trade possibilities. A. Znamiecki. *Am Ind* 15:19-22, 28-9 Ja-F '15

- Russia from the point of view of an American engineer and business man. D. L. Hough. *Iron Age* 95:664-8 Mr 25 '15

Industries and resources

- Electrical development in Russia. L. W. Schmidt. *Elec W* 66:1719-20 Je 26 '15

- Refrigeration and cognate enterprises in Russia. M. T. Zarotchenzeff. *Am Ind* 16:17-19+ N '15

Russia—its future as a coal and iron producer.

- C. R. King. *map Eng M* 48:481-92 Ja '15

- Russia's power resources; extensive water falls and peat deposits await exploitation. *maps Eng M* 49:909-12 S '15

See also **Mines and mineral resources—Russia**

Public works

- Two large irrigation projects in Russia. M. Nikolitch. *Il map Eng N* 74:8-11, 102-4 J1 1, 15 '15; Abstract. *Eng M* 50:467-9 D '15

Rust. See Corrosion and anti-corrosives**Ryerson, Joseph T., & son**

- Retelling steel mill products. *Il plan Iron Tr R* 56:65-71 Ja 7 '15

S**Safes**

- New burglar-proof safe. *Sci Am* 112:598 Je 12 '15

See also **Vaults**

Safety at sea

- Application of subdivision rules adopted at international conference: abstract. J. Donald. *Int Marine Eng* 20:9 Ja '15
 Emergency exit from boiler rooms. *Il Sci Am* 113:201-4 S 4 '15
 Emergency marine gangway. *Il Sci Am* 112:410 My 1 '15
 Fire-room emergency escape. *diags Int Marine Eng* 20:410-12 S '15
 International conference on safety of life at sea: abstract. E. T. Chamberlain. *Int Marine Eng* 20:8-9 Ja '15
 Providing a ship with ears; a system for locating other ships and icebergs during fog. R. G. Skerrett. *Il Sci Am* 113:450 N 20 '15
See also Collisions at sea; Davits; Fires at sea; Fog signals; Life preservers; Lifeboats; Lighthouses

Safety committees

- Organizing for safety; safety inspectors and safety committees. A. J. Daly. *Mach* 21:281-2 D '14
 Organizing safety committees. H. A. Russell. *Il Iron Age* 96:69-70 JI 8 '15
 Results of accident-prevention work in Commonwealth Edison organization. *Elec W* 65:1187 My 8 '15

Safety council, National. See National safety council**Safety devices and measures**

- Accident prevention. C. B. Scott. *Am Gas Light J* 103:139-40 Ag 30 '15
 Accident prevention in power plants. *Power* 42:381-2 Ag 24 '15
 Accident prevention in the chemical industries. F. W. Keough. *Met & Chem Eng* 13:731-4 O 15 '15; *Excerpts. Am Ind* 16:28-4 N '15
 Accident prevention; N. E. L. A. committee report. *Elec W* 65:1533-4 Je 12 '15
 Accident prevention on a business basis. *Elec R & W Elec'n* 66:1029-32 Je 5 '15
 Accidents that could have been prevented. *Am Gas Light J* 103:35 JI 19 '15
 Application of educational methods to the reduction of accidents. S. W. Ashe. *Illum Engr* 8:348-52 Ag '15
 Carelessness in the factory. A. A. Dowd. *Iron Age* 96:511 S 2 '15
 Commonwealth Edison company awarded safety medal. *Elec R & W Elec'n* 65:1204 D 26 '14
 Eye protection for grinders and machinists. H. W. Davie. *Il Mach* 21:570-1 Mr '15
 Gas safety code of the Bureau of standards. R. S. McBride. *Am Gas Light J* 103:44-5 JI 19 '15
 Hazards of factory floors. *Il Am Ind* 15:sup1-4 My '15
 How safety-first devices were displayed in Pittsburgh department store windows. *Il Iron Age* 95:496-9 Mr 4 '15
 Industrial betterment. F. E. Cardullo. *Il Mach* 22:185-90 N '15
 Industrial safety. C. B. Scott. *Am Gas Light J* 103:181-2 S 20 '15
 Industrial safety and principles of management. W. P. Barba. *Am Soc M E J* 37:692-5 D '16; Same cond. *Iron Age* 96:1232-4 N 25 '15
 Making the safety movement permanent. *Elec Ry J* 45:717, 800-1 Ap 10, 24 '15
 Organizing for safety; safety inspectors and safety committees. A. J. Daly. *Mach* 21:281-2 D '14
 Preventing cupola explosions. F. Osswald. *Il diag Iron Tr R* 55:1228+ D 31 '14
 Report of committee on accident prevention. *Am Gas Inst Pro* 9:pt 1, 82-110; Discussion. 9: pt 1, 111-20 '14
 Safe hand tools. *Il Iron Tr R* 56:523-4 Mr 11 '15; Same. *Eng & Min J* 99:531-2 Mr 20 '15; Same. *Ind Eng* 15:19-20 Ja '15
 Safeguarding of ladders, stairs and platforms. *Il diags Am Ind* 15:sup1-4 F '15
 Safety and welfare work in an electrical plant. C. L. Lucas. *Il Mach* 22:210-14 N '15
 Safety first for you and me. H. L. Brownell. *Elec Ry J* 45:749 Ap 17 '15
 Safety first in road building. *Eng Rec* 72:270 Ag 28 '15

Safety in care and use of industrial railways. *diag Foundry* 43:105-6 Mr '15; Same. *Ind Eng* 15:78-5 Ag '15; Same cond. *Eng M* 48:603-5 Ja '15

- Safety in handling refrigerants. A. G. Solomon. *Power* 41:170-1 F 2 '15
 Safety in sheet metal operations. *Il Am Ind* 15:sup1-4 Ap '15
 Safety in stone quarrying. O. Bowles. *Il U S Bur Mines Tech Pa* 111:1-46 '15
 Safety in the home and on the streets. *Il Am Ind* 15:24-5 My '15
 Safety on the streets. J. P. McCall. *Am Ind* 15:24-5 F '15
 Safety reminders. *Am Gas Light J* 102:410 Je 28 '15
 Safety second—service first; abstract. W. H. Blood. *Elec W* 65:422 F 13 '15
 2d annual Pennsylvania industrial welfare and efficiency conference. *Metal Work* 82:733 D 4 '14
 Sixth award of the Scientific American medal for safety devices. W. H. Tolman. *Il Sci Am* 112:174 F 20 '15
 Standardization in safety and sanitation. M. W. Alexander. *Am Ind* 15:26-7 F '15
 Standardization of safeguards. C. M. Hansen. *Am Ind* 16:20-2 N '15
 Wisconsin safety rules. *Iron Age* 96:89 JI 8 '15
 Workmen's co-operation reduces accidents. *Il Iron Age* 95:1051-4 My 13 '15

See also Air brakes; Boilers—Safety devices; Brakes; Car couplings; Coal mines and mining—Safety measures; Cranes, derricks, etc.—Safety devices; Electric engineering—Safety devices; Electric protective apparatus; Electric railroads—Safety devices; Factories—Lighting; Foundries—Safety devices; Goggles; Grinding machines—Safety devices; Helmets; Lightning conductors; Machine shops—Safety devices; Machinery—Safety devices; Mine rescue work; Mining engineering—Safety measures; Motor trucks—Fenders; Railroads—Safety devices; Railroads—Signals; Safety at sea; Safety lamps; Safety valves; Steam shovels—Safety devices; Street railroads—Safety devices; Subways—Safety devices

Safety first federation of America

- 1st meeting, New York, July 13. *Elec Ry J* 46:103-5 JI 17 '15

Safety lamps

- Benzine substitutes for safety lamps. *Colliery* 35:556 JI '15
 Miners' carbide lamps. J. W. Paul. *U S Bur Mines Circ* 18:1-10 '15
 Miner's lamps. *Illum Engr* 7:551-2 D '14
 Oil vs. electric safety lamps. H. H. Hirsch. *Colliery* 35:535-7 Ja '15

Safety lamps, Electric

- Electric lights for use about oil and gas wells. H. H. Clark. *U S Bur Mines Tech Pa* 79:1-7 '14; *Excerpts (Electric lamps in gaseous places). Ry R* 56:367 Mr 13 '15
 Miners' electric safety lamps. *Engineer* 118:548 D 11 '14
 New type of miner's electric lamp. *Il Elec R & W Elec'n* 66:398-9 F 27 '15; *Elec W* 65:563-4 F 27 '15; *Colliery* 35:507-8 Ap '15; *Iron Tr R* 56:723 Ap 8 '15
 One year's experience with the electric safety lamp. C. Johnson. *Colliery* 35:548 My '15
 Pearson's electric miners' lamp works. *Il Engineer* 120:138-9 Ag 6 '15
 Self-contained portable electric lamps for miners. H. H. Clark. *Illum Eng Soc* 9:895-908 no 9 '14

Safety valves

- As dangerous as dynamite: a steam boiler with an inoperative safety valve. *Power* 41:137 Ja 28 '15
 Calculation of dimensions of safety valves with high lift; abstract. Otto. *Am Soc M E J* 37:481 Ag '15
 Clips for securing date tags to steam gages and safety valves. C. L. Dickert. *diags Ry Age (Mech ed)* 89:131-2 Mr '15
 Locomotive safety valve. *diag Ry Age (Mech ed)* 89:255 My '15
 Massachusetts ammonia safety regulations. F. L. Fairbanks. *diags Power* 42:753-5 N 30 '15

Safety valves—Continued

- Method of testing safety valves at the U. S. naval experiment station; abstract. L. R. Ford. Am Soc M E J 37:611-12 O '15
 Overloading of safety valves. Power 41:282 F 23 '15
 Safety-valve specifications. A. B. Carhart. Power 41:81-2 Ja 19 '15
 Safety-valve specifications. G. E. Perkins. Power 41:241-2 F 16 '15
 Safety valves—a discussion. A. B. Carhart. Power 41:509-11 Ap 13 '15
 Safety valves for oil fired boilers; abstract. D. MacNicol. diags Am Soc M E J 37:860-1 N '15
 Visits of Inspector Brown. J. E. Terman. diag Power 42:508-9 O 12 '15

Safety zones. See Street traffic**Sailing vessels**

- One hundred percent efficient, yet obsolete. Int Marine Eng 20:36 Ja '15

St. Elol, Abbey of

- Ancient abbey of St. Elol. J. Alaux. Il Am Inst Arch J 3:12-13 Ja '15

St. Louis, Missouri

- Progress of city planning in St. Louis. plans Am Inst Arch J 3:271 Je '15

Architecture

- Washington university. G. Study. Il plan Arch Rec 37:64-76 Ja '15

Bridges

- Building a long concrete viaduct at St. Louis. P. A. Richardson. Il Eng Rec 70:692-3 D 26 '14
 Completing the new Mississippi river bridge at St. Louis. Eng N 73:954-5 My 18 '15
 Reinforced-concrete viaduct at St. Louis. Mo. C. W. Martin. Il diags Eng N 74:725-7 O 14 '15
 St. Louis municipal bridge east approach a steel viaduct nearly 3 miles long. diags Eng Rec 72:634-5 N 20 '15
 Three-mile approach viaduct. St. Louis municipal bridge. diag Eng N 74:454-5 S 2 '15

Charter

- New charter for St. Louis. E. Flad. Am Soc M E J 37:88 F '15

Park department

- Development of a unit cost system. N. Cunliff. Il Assn Eng Soc 53:74-36 Ag '14; Same. Eng & Contr 42:374-8 O 21 '14; Discussion. Assn Eng Soc J 53:85-101, 165-70 Ag-S '14

Public works

- Municipal dock for St. Louis. Eng N 74:1101 D 2 '15

Railroads

- Eliminating the Tower Grove grade crossing at St. Louis. Il diags plan Eng N 74:52-5 J 18 '15
 Elimination of the Tower Grove crossings, St. Louis. Mo. S. L. Wonson. Il diags plans Assn Eng Soc J 55:95-115 O '15; Same cond. Ry Age 59:799-802 O 29 '15; Same cond. Eng Rec 72:627-9 N 20 '15
 St. Louis, inadequate terminal facilities. Ry Age 59:147-8 J 1 23 '15

Rapid transit

- Regulation of jitney busses in St. Louis. Munic Eng 48:341-2 Je '15
 St. Louis service order; Missouri commission fixes service standards, defining rush-hour periods, transition periods and non-rush-hour periods. Elec Ry J 45:961 My 15 '15

Sanitary affairs

- Garbage and refuse collection and disposal. Munic Eng 48:340-1 Je '15

Sewerage

- New sewer inlets at St. Louis. S. Chivvis. Il diags Eng N 74:552-3 S 30 '15

Streets

- Engineering work preliminary to pavement construction. plans Eng N 74:460-1 S 2 '15

Water supply

- New intake tower and tunnel. E. C. Davis. Il diags plans Assn Eng Soc J 53:281-300 D '14
 Opening of St. Louis filtration plant. Il Eng N 73:1002 My 20 '15
 St. Louis water works improvements. Munic J 39:380-1 S 2 '15
 St. Louis will operate world's largest mechanical filters next week; views. Eng Rec 71:578-9 My 8 '15
 St. Louis & San Francisco railroad
 Abstract of annual report. map Ry Age 59:884-6 N 12 '15
 Comparison between the 1914 and 1913 fiscal years. map Ry Age 58:119-21 Ja 22 '15
 St. Louis Southwestern railway
 Twenty-fourth annual report. map Ry Age 59:792-3, 836-8 O 29 '15
 St. Paul, Minnesota

Churches

- House of Hope Presbyterian church. Il plan Arch Rec 37:410-24 My '15

Railroads

- New railway passenger terminal at St. Paul. plans Eng N 73:488-9 Mr 11 '15
 Plans for the new Union station. diags Ry Age 58:261-3 F 12 '15

Sakurajima, Mt.

- Sakurajima eruptions and earthquakes. E. Omori. Sci Am S 79:242-3 Ap 17 '15

Salaries

- Way to pay the salesman: salary-plus-commission plan. Elec W 65:1698-1700 Je 26 '15; Same. Am Gas Light J 103:71+ Ag 2 '15

Salem, Massachusetts

- Rebuilding Salem, Mass. W. B. Conant. Il Munic J 39:218-19 Ag 12 '15

Fire, 1914

- Salem (Mass.) conflagration; with discussion. C. H. Smith. Il W Soc E J 20:172-92 F '15

Sales

- Acceptance binds parties to contract. E. J. Buckley. Metal Work 84:655 N 19 '15
 Balancing production with sales. C. W. Thayer. Mach 21:968 Ag '15
 Difficulties attending the sale of a business. E. J. Buckley. Metal Work 83:552 Ap 9 '15
 Exclusive agencies and the Clayton act. Elec R & W Elec'n 66:527-9 Mr 20 '15
 Inspecting goods after they are received; the buyer's rights and liabilities. E. J. Buckley. Elec R & W Elec'n 67:416 S 4 '15; Same (Right of buyer to reject goods shipped). Metal Work 84:355 S 10 '15
 Installment sales. S. Walton. J Account 20:143-8 Ag '15
 Legality of exclusive agencies upheld. Elec R & W Elec'n 66:908 My 15 '15
 Protecting dealer on producer's guarantee. E. J. Buckley. Metal Work 84:593 N 5 '15
 Recording returned goods. H. A. Russell. Iron Age 96:585 S 9 '15
 Sales helps for the dealer. Il Horseless Age 35:531-2 Ap 21 '15

Sales departments

- Central-station sales department organization and work. E. D. Beardslee. Elec R & W Elec'n 65:1073-9 D 5 '14
 Commercial practices in California. H. B. Pitts. Il Elec W 65:1409-12 My 29 '15
 Way to pay the salesman: salary-plus-commission plan. Elec W 65:1698-1700 Je 26 '15; Same. Am Gas Light J 103:71+ Ag 2 '15

Sales letters

- Building business by circular letter. W. J. Wooley. Metal Work 84:42-3 J 1 9 '15
 Building plumbing trade by mail. H. Whitehead. Dom Eng 71:6-8 Ap 3 '15
 Business methods for the plumber and fitter. W. A. Fink. Dom Eng 70:369; 71:34-5 Mr 20, Ap 10 '15

Salesmen and salesmanship

- As Perlmutter would say. "Silence is nix." F. Farrington. Metal Work 84:486-7 O 15 '15
 Avoiding being at salesmen's or solicitors' mercy. E. J. Buckley. Elec R & W Elec'n 67:486-6 S 11 '15
 Boy as a factor in selling. Horseless Age 35:427 Mr 31 '15

Salesman and salesmanship—Continued

- Business hints for dealer and contractor. G. D. Crain, Jr. Elec R & W Elec'n 67:324-5 Ag 21 '15
- Business relations of salesman and employer. F. Farrington. Metal Work 84:578-9 N 5 '15
- Card recrus in selling accessories. Horseless Age 35:229-30 F 17 '15
- Details of Cincinnati appliance campaign. Elec It & W Elec'n 67:360-1 Ag 28 '15
- Engineers' salesmanship. A. H. Pohlman. Power 41:723-4 My 25 '15
- Enthusiasm and the prospective customer. F. Farrington. Metal Work 84:4-5 JI 2 '15
- Enthusiasm keynote of good salesmanship. R. T. Gebler. Metal Work 84:519-20 O 22 '15
- Evening courses in retail selling at University of Minnesota. Am Ind 15:18 Ja '15
- Going after the business. H. Whitehead. Dom Eng 70:271-2 F 27 '15
- Hints for salesmen. J. G. Jones. Am Gas Light J 103:75-6 Ag 2 '15
- How a purchasing agent views the electrical salesmen who come to sell him goods. G. R. Jones. Elec W 66:1151-2 N 20 '15
- How the sales engineer gets orders. A. A. Dowd. Iron Tr R 56:667-72 Ap 1 '15
- How to select, train and hold your selling force. Am Gas Light J 102:166-7 Mr 15 '15
- How to use the sales engineer. A. A. Dowd. II diag Iron Tr R 56:459-63+, 667-72, 927-30+ Mr 4, Ap 1, My 6 '15
- Hundred-pointer and the counter-jumper. F. Farrington. Metal Work 84:641-2 N 19 '15
- Intelligent study always brings reward. F. Farrington. Metal Work 84:107-8 JI 23 '15
- Making printing a sales force. I. S. Paull. Inland Ptr 55:568-70 Ag '15
- Motion picture in industry utilized by manufacturers of machinery in selling their products. A. L. Morris. II Iron Tr R 56:517-18 Mr 11 '15
- N. E. L. A. committee report on education of salesmen. Elec W 65:1528-9 Je 12 '15
- N. E. L. A. committee report on merchandising and recent developments in electrical appliances. Elec W 65:1523-3 Je 12 '15; Elec R & W Elec'n 66:1109 Je 12 '15
- Optimism and successful salesmen. L. O. Koven. Metal Work 84:608 N 12 '15
- Organization meetings. Horseless Age 35:195-6 F 10 '15
- The outer and the inner office. Ry R 56:231-2 F 13 '15
- Paying commissions on cancelled orders. E. J. Buckley. Elec R & W Elec'n 67:234 Ag 7 '15
- Price cutting as viewed by the traveling salesman. J. K. Simpkins. Metal Work 83:433 Mr 19 '15
- Printer and his business. L. H. Grieve. Inland Ptr 55:63-4 Ap '15
- Producers give assistance to distributors. Metal Work 83:37-8 Ja 1 '15
- Railway supply man's point of view. Ry R 56:542-3 Ap 17 '15
- Salesman's job requires special knowledge. F. Farrington. Metal Work 84:91-2 JI 16 '15
- Salesmanship. Ry R 56:370 Mr 13 '15
- Salesmen's training course of the American steel & wire co. C. R. Sturtevant. Ry R 57:28 JI 3 '15
- Scientific handling of salesmen. Ind Eng 14:885-81 O 14
- Selling helps that have proved effective. II Metal Work 83:2-9 Ja 1 '15
- Selling in the irrigation country. II Elec W 65:1414-17 My 29 '15
- Selling lamp-socket appliances; an analysis of eleven years' experience in marketing electric household devices in southern California. S. M. Kennedy. Elec W 65:1412-14 My 29 '15
- Sheet metal product selling campaigns. R. Danzer. Metal Work 83:42+ Ja 1 '15
- Should the salesman collect money? E. H. Whitehorse. Elec W 66:921-3 O 23 '15
- Telephoning and letter writing. Ry R 56:603-4 My 1 '15
- Value of sales experience to the engineer. W. T. Price. Sibley J 30:11-13 O '15
- What should a salesman produce? B. Daniels. Inland Ptr 55:230-1 My '15
- Why some men fail and others make good. C. M. Smith. Metal Work 84:609 N 12 '15

- Winning the co-operation of the jobber. Metal Work 83:38 Ja 1 '15
- Word for and to industrial salesmen. C. E. Chapple. Am Gas Light J 103:89 Ag 9 '15
- Word to managers about their men. W. Gould. Elec W 66:536-8 S 4 '15
- Works school for salesmen. C. R. Sturtevant. Iron Age 95:1353 Je 17 '15
- See also Advertising; Sales departments; Sales letters
- Sallylic aldehyde**
- Effect of certain organic compounds on wheat plants in the soil. F. W. Upson and A. R. Powell. II J Ind & Eng Chem 7:421-2 My '15
- Salol**
- Estimation of phenacetin and salol in admixture. W. O. Emery, G. C. Spencer and C. C. LeFebvre. J Ind & Eng Chem 7:681-4 Ag '15
- Saloons.** See Temperance
- Salt**
- Composition of the salines of the United States; a correction. J. W. Turrentine. J Ind & Eng Chem 7:687-9 Ag '15
- Origin of the Louisiana and east Texas salines. E. G. Norton. map Am Inst Min E Bul 97:93-102 Ja '15; Discussion. 101:1120-2 My '15
- Salt and its relation to nutrition. P. G. Stiles. Sci Am S 79:295 My 8 '15
- Salt making by solar evaporation. W. C. Phalen. II Am Inst Min E Bul 93:2249-65 S '14; Discussion. 100:859-61 Ap '15
- Solubility of mixtures of sodium and potassium chlorides in solutions of hydrochloric acid. W. B. Hicks. diag Am Chem Soc J 37:844-7 Ap '15
- United States mining statutes annotated; salines and salt springs. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1194-1214 '15
- Salt Lake City, Utah**
- Streets**
- Paving in Salt Lake City. Munic J 37:958 D 31 '14
- Saltpeter, Chile**
- American metallurgist in the Chile nitrate field. Eng & Min J 99:252-3 Ja 30 '15
- Chilean nitrate industry. M. R. Lamb. II Eng & Min J 99:811-15 My 8 '15
- Drag-line machine for nitrate. J. G. Beck. II Eng M 49:429 Je '15
- Salts**
- Salts colored by cathode rays. E. Goldstein. Sci Am S 79:318-19 My 15 '15
- See also Chemistry
- Salvador, C. A.**
- Commerce**
- American sheet metal products in Salvador. G. Harris. II Metal Work 83:300-1 Je 4 '15
- Salvage**
- Floating a stranded ship on air; refloating the steamship Zeeland. R. G. Skerrett. II Sci Am 112:84 Ja 23 '15
- How compressed air saved the steamship Floriston. R. G. Skerrett. II diag Int Marine Eng 20:270-1 Je '15
- Hunting for derelict ships. II Sci Am 112:606 Je 19 '15
- In quest of sunken treasure: spherical car for deep sea salvage work. C. L. Edholm. II Sci Am 112:250 Mr 13 '15
- Raising the submarine F-4. J. A. Furer. II plan Eng N 74:860-4 N 4 '15
- Refloating the steamship Zeeland by compressed air. R. G. Skerrett. Int Marine Eng 20:87-8 F '15
- Salvage of the submarine F-4. J. A. Furer. II Sci Am 113:336-7+ O 16 '15
- Salvage work on the Empress of Ireland. R. G. Skerrett. II plan diag Int Marine Eng 20:60-2 F '15; Same cond. Sci Am 112:49 Ja 9 '15
- Wrecked dredge raised from timber bridge between dump scows. O. S. Proctor. II Eng Rec 72:303 S 4 '15
- See also Wrecking

Salvage ships

- Mother ship for submarines; a combined salvage and drydock vessel. R. G. Skerrett. *diag Sci Am* 112:480 My 8 '15
 Salvaging sunken submarines. *il diag Sci Am S* 79:232-3 Ap 10 '15
 Submarine to salvage a submarine. R. G. Skerrett. *il Sci Am* 112:342 Ap 10 '15

Samoa Islands

- American Samoa. *Sci Am* 112:81 Ja 23 '15

Sample books. See Cloth-sample books**Sanatoriums**

- See also* Convalescent homes; Tuberculosis, Hospitals and sanatoriums for

Sanatoriums, Municipal

- Chicago municipal tuberculosis sanitarium. C. A. Erikson. *il plans Brickb* 24:267-72, pl 151-7 N '15

Sand

- Cost of hydraulic sand and gravel mining. R. J. Borhek. *Eng & Contr* 43:573-4 Je 80 '15
 Economy effected in the use of river sand as a filter medium at Moline, Ill. *Eng & Contr* 43:236-7 Mr 17 '15
 Effect of fineness of sand and of clay and loam on the strength of mortar. F. L. Roman. *Eng & Contr* 43:403-6 My 5 '15
 Electricity in sand and gravel plants. *il Elec R & W Elec'n* 67:599-602 O 2 '15
 Equipment and operation of plant at Waukegan, Wis. S. E. Bates. *il diag Concrete Cem* 7:165-8 N '15
 How consistency and age affect strength of mortar. *Eng Rec* 72:484 O 16 '15
 Poor sand the cause of the rapid disintegration of a sheet-asphalt pavement. W. M. Cross. *Eng N* 72:621 Ap 1 '15
 Railway sand experience. W. F. Carr. *Elec Ry J* 45:143 Ja 16 '15
 River sand as a filter medium. L. A. Fritze. *Am Water Works Assn J* 2:390-2 Je '15
 Sand for concrete and cement mortar should have jump in grading. R. H. McNelly. *Eng Rec* 72:659-62 N 27 '15
 Standard terminology for filter and concrete sands. *Eng Rec* 71:671 My 29 '15
See also Concrete—Aggregate

Analysis

- Mechanical analyses of sands. P. Burgess. *Am Water Works Assn J* 2:493-500 S '15; Abstract. *Eng & Contr* 43:488-9 Je 2 '15; Discussion. *Am Water Works Assn J* 2:500-14 S '15
 Method of making mineralogical analysis of sand. C. W. Tomlinson. *Am Inst Min E Bul* 101:447-56 My '15
 Standard apparatus and procedure recommended for sand analysis. P. Burgess. *Eng Rec* 71:644; Discussion. A. Hazen. 71:644-6 My 22 '15

Testing

- Economic side of sand testing. C. M. Chapman and N. C. Johnson. *il Eng Rec* 71:734-7 Je 12 '15; Same. Sibley J 80:65-70 N '15
 Field examination of concrete sand. *diag Concrete Cem* 6:308-5; 7:73-5 Je, Ag '15
 Field examination of concrete sands. C. H. Fuller. *Concrete Cem* 7:156-7 O '15
 Mechanical grading of concrete sand. G. P. Dieckmann. *Concrete Cem* 7:68-9 Ag '15
 New instrument tests sands quickly in the field. *il Eng Rec* 71:321-2 Je 28 '15
 Quality of concrete controlled by tests of sand. C. M. Chapman and N. C. Johnson. *il Eng Rec* 71:801-4 Je 26 '15
 Rapid sand testing device. *il Concrete Cem* 7:139-90 N '15
 Safe concrete demands knowledge of nature of sands. C. M. Chapman and N. C. Johnson. *il Eng Rec* 71:771-4 Je 19 '15
 Sand testing at Denver. E. B. Van De Greyn. *Eng Rec* 71:551 My 1 '15
 Sand testing at New York in the laboratory of the Board of water supply. C. M. Montgomery. *Eng Rec* 71:551-2 My 1 '15
 Wearing tests for sand and gravel. F. L. Roman. *Good Roads n s* 9:186-7 My 1 '15

Sand, Foundry

- Crane sand cutting machine. *il Iron Tr R* 56: 88-90 Ja 7 '15; Same. *Foundry* 43:77-9 F '15

- How to get high core efficiency. H. M. Lane. *Iron Age* 96:684-6 S 23 '15
 Molding sand. W. J. Keep. *Foundry* 43:380-1 S '15
 Sand mixing plant for a large foundry. *il Iron Age* 94:1278-5 D 3 '14
See also Sand binders

Sand binders

- Functions of sand binders. H. M. Lane. *Metal Ind n s* 13:421-3 O '15

Sand blast

- How the Portage silica co. prepares its product to meet the requirements of the foundry trade. *il Foundry* 43:36-74 Ja '15
 How to operate the sand-blast efficiently. J. M. Betton. *Foundry* 43:182-3 My '15
 Improved sand blast plant, Bridgeport, Conn. *il Foundry* 43:374 S '15
 Plant for sand blasting steel cars. *diag Ry Age* 59:397-8 Ag 27 '15; Same. *Ry Age (Mech ed)* 89:427-8 Ag '15
 Safe sand blasting from an operating booth. R. H. Parsons. *diag Elec Ry J* 44:1258-9 D 6 '14; Same. *Ind Eng* 14:460-1 D '14; Same. *Eng M* 48:748-9 F '15
 Sand blast for marking glassware. G. Spitzer and L. S. Trachsel. *diag J Ind & Eng Chem* 7:426-7 My '15
 Sand blasting steel cars. *diag Ry Age (Mech ed)* 89:376-7 J1 '15; Same cond. *Ry Age* 59: 104-5 J1 16 '15

Sand drying

- Automatic sand dryer. *il Elec Ry J* 46:455 S 11 '15
 Drying sand in 7-yd. batches. *diag Elec Ry J* 46:193 J1 31 '15
 Oil burning sand dryer. F. G. Lister. *diag Ry Age (Mech ed)* 89:407 Ag '15

Sand flow

- Experiments on the flow of sand and water through spigots. R. H. Richards, and B. Dudley, Jr. *diag Am Inst Min E Bul* 97: 67-72 Ja '15; Same cond. *Met & Chem Eng* 13:120 F '15; Discussion. *Am Inst Min E Bul* 101:1122-3 My '15

Sand handling

- Notable floating sand and gravel plant. *il Eng & Contr* 43:476-7 My 26 '15
 Pumping and loading sand; with tables of costs. A. E. Smith. *il Elec W* 66:467-8 Ag 28 '15

Sand washing

- Continuous washer cleans 250 yards of sand a day. *plan Eng Rec* 72:611 N 13 '15
 Large capacity sand and gravel washing plant. *il Eng & Contr* 43:526 Je 9 '15

San Diego, California

- Panama canal and the ports of the Pacific. A. J. Quigley. *il map Eng M* 48:643-50 F '15

Bridges

- Concrete viaduct at San Diego. *il Munic Eng* 49:105-6 S '15

Panama-California exposition

- At the Panama-California exposition at San Diego. *il Sci Am* 113:40 J1 10 '15
 Lighting at San Diego exposition. *il Elec W* 66:805-7 Mr 27 '15
 Panama-California exposition. *il Eng N* 73: 801-2 Ap 29 '15
 Panama-California exposition; Bertram G. Goodhue and the renaissance of Spanish-colonial architecture. C. M. Price. *il plan Arch Rec* 37:229-51 Mr '15

Public works

- San Diego's municipal stadium. F. A. Rhodes. *il plan Eng N* 74:677-80 S 23 '15

Railroads

- Terminal facilities at San Diego. *il plans Elec Ry J* 45:587-8 Mr 20 '15

Rapid transit

- Handling traffic to the Panama-California exposition at San Diego. B. M. Warner. *il map Elec Ry J* 46:508-9 S 18 '15
 Sectionalizing of electric railway feeders at San Diego. H. MacNutt. *plan Elec Ry J* 46: 496-9 S 18 '15

San Diego, California—Continued**Water, supply**

- Development plan for the water distribution system of San Diego. P. H. Thearle. Eng & Contr 43:174-5 F 24 '15
 San Diego must save all available water. Eng Rec 71:714-15 Je 5 '15
 Water supply for San Diego, Cal. Eng & Contr 44:sup21-2 Ag 25 '15
 Water-works improvements at San Diego. diags Eng N 73:343 F 13 '15

Sandpapering

- Construction of a drum sander. Bldg Age 37: 58 F '15

San Francisco, California

- Panama canal and the ports of the Pacific. A. J. Quigley. II maps Eng M 48:654-7 F '15

Bridges

- Mission street viaduct. A. J. Cleary. II plan Eng N 73:319-20 F 18 '15

Electricity supply

- Interconnected systems serving San Francisco. II diags map Elec W 65:1356-82 My 29 '15

Harbor

- Improvement of San Francisco's water front. J. Newman. II diags Eng N 73:326-8 F 13 '15
 Suspended fenders a feature of new reinforced-concrete piers at San Francisco. F. G. White. II diags Eng Rec 71:231-3 F 20 '15

Panama-Pacific International exposition

- Carborundum and cork exhibits at the Panama-Pacific International exposition. II Met & Chem Eng 13:453-60 J1 '15
 Engineering features of the Panama-Pacific International exposition. G. L. Bayley. II Am Soc M E J 37:571-91, 698-8 O 15; Abstract. Eng N 74:345-6 O 28 '15; Discussion. Am Soc M E J 37:898-9 D '15
 Engineering problems of the Panama-Pacific exposition. A. H. Markwart. II plan Eng N 73:329-36 F 13 '15
 Exhibits at Panama-Pacific exposition: electric railway apparatus shown in both the palaces of transportation and of machinery. Elec Ry J 45:519-20 Mr 13 '15
 General electric company's exhibits at the Panama-Pacific International exposition. G. W. Hall. II Gen Elec R 18:561-71 Je '15
 Great exposition at San Francisco. II Metal Work 84:377-81 S 17 '15
 Home electrical at the Panama-Pacific International exposition. D. C. Shafer. II Gen Elec R 18:572-8 Je '15; Same cond. Elec R & W Elec'n 66:1041-3 Je 5 '15
 Industrial uses of gas at the Panama-Pacific International exposition. J. B. Redd. Am Gas Light J 103:156-7 S 6 '15
 Jurors of exhibits at the Panama-Pacific exposition. Iron Age 95:1146-7 My 20 '15
 Large-scale time-limited construction problems. E. P. Lesley. plan Iron Age 95:79-81 Ja 7 '15; Same cond. Eng M 48:391-3 Mr '15
 Machinery exhibit compared with those of earlier expositions. II Lower 41:250-6 F 23 '15
 Manufacturers' exhibits at the Panama-Pacific exposition. Elec W 66:833-6 Mr 27 '15
 Mechanical engineering at the Panama-Pacific International exposition. G. W. Dickie. II Am Soc M E J 37:592-600 O '15
 Nation in perspective; Canada at the Panama-Pacific exposition. E. H. Hurlbut. II Sci Am S 80:17, 24-5 J1 10 '15
 Outline of exhibits of products of mechanical engineering. II Iron Age 96:142-9 J1 15 '15
 Panama canal in miniature operates at exposition. II Eng Rec 71:434-5 Ap 3 '15
 Panama-Pacific exposition. F. R. Low. II diags Power 42:180-4, 225-9, 261-6, 290-3, 341-3, 374-7, 444-7, 580-8, 730-3 Ag 10-S 23, O 26, N 23 '15
 Petroleum exhibit—San Francisco Panama-Pacific International exposition, February 20 to December 4, 1915. J Ind & Eng Chem 7:259-60 Mr '15
 Printer's trip to the California expositions. E. C. Andrews. II Inland Ptr 55:372-6 Je '15
 Railway exhibit at the Panama-Pacific International exposition. II plan Ry R 56:685-8, 882-5 My 22, Je 26 '15

- Railways and the California expositions. II Ry Age 59:461-4, 499-502 S 10-17 '15
 Road and street exhibits at the Panama-Pacific International exposition. II Good Roads n s 10:154-9 S 4 '15
 San Francisco's notable engineering works. II Eng Rec 71:229-30 F 20 '15
 What the Panama-Pacific exposition means to civil engineering and contracting. Eng Rec 71:619-20 My 15 '15

Amusement features

- Aeroscope a novel feature of Panama-Pacific exposition. II Eng Rec 71:423 Ap 3 '15
 Aeroscope at the Panama-Pacific exposition. II Elec Ry J 46:31-2 J1 3 '15
 Anchored airship: structural amusement device weighing 620 tons. II Iron Age 95:184 Ja 21 '15
 Joy riding in the sky. II Sci Am 112:344 Ap 10 '15

Architecture

- Color in architecture at the Panama-Pacific exposition. W. L. Woollett. II Arch Rec 37: 437-44 My '15
 Four drawings. J. M. Rosé. Arch Rec 37: 228a-228h Mr '15
 International Panama-Pacific exposition. II Sci Am 112:194-5 F 27 '15
 Panama-Pacific exposition; plan and views. L. C. Mullgardt. Arch Rec 37:192-228 Mr '15
 Panama-Pacific International exposition; buildings and their cost. G. K. Harrison. II Am Ind 15:16-20 Mr '15
 Scene painting in architecture. W. L. Woollett. II Arch Rec 38:571-4 N '15
 Texture and color at the Panama-Pacific exposition. P. E. Denivelle. II Arch Rec 38:562-70 N '15
 Three impressions of the exposition. H. R. Mainzer; G. H. Gray; J. C. Levi. II Am Inst Arch J 3:467-70 N '15

Auditorium

- San Francisco's new exposition-civic auditorium. II Elec W 65:313 Ja 30 '15
 Ventilation and other features of exposition auditorium at San Francisco. II Eng Rec 71: 237-8 F 20 '15

Electric equipment

- Electrical equipment of Panama-Pacific exposition. II diags plan Elec W 64:1341-7 D 26 '14
 Problems in electrical inspection at the Panama-Pacific International exposition. G. A. Cleary. Elec R & W Elec'n 67:22-4 J1 3 '15
 Wiring and conduit work at the Panama-Pacific exposition. A. A. Willoughby. II diag Elec R & W Elec'n 67:365-8, 432-5, 472-4 Ag 23-S 11 '15

Lighting and heating

- Gas lighting at the Panama-Pacific International exposition. C. B. Babcock. II Am Gas Light J 102:234-5 Ap 12 '15
 Illumination at the Panama-Pacific exposition. II Elec W 65:1383-6 My 29 '15
 Illumination by ornamental luminous arc lamps at Panama-Pacific International exposition. Elec R & W Elec'n 66:1072-3 Je 5 '15
 Illumination features at Panama-Pacific International exposition. A. A. Willoughby. II Elec R & W Elec'n 66:1032-4 Je 5 '15
 Illumination of Panama-Pacific exposition. G. L. Bayley. II Elec W 66:391-5 F 13 '15
 Illumination of the Panama-Pacific International exposition. W. D'A. Ryan. II Gen Elec R 18:579-93 Je '15; Same cond. Sci Am S 79:376-7 Je 12 '15; Same cond. Illum Engr 8:305-9 J1 '15
 Panama-Pacific exposition; committee report. Illum Eng Soc 10:534-7 no 7 '15; Same cond. Am Gas Light J 103:276 N 1 '15
 Panama-Pacific International exposition at night; how the illuminating engineer uses light decoratively. H. M. Wright. II Sci Am 112:378-4 Ap 24 '15
 Spectacular illuminating effects at the Panama-Pacific exposition. II Sci Am 112:180-1 F 20 '15

San Francisco—Panama-Pacific expos'n.—Cont.*New York state building*

Facilitating timber design; tables and diagrams used in connection with the structural work on the New York state building. S. Diamant. Eng Rec 71:296-7 Mr 6 '15

Palace of horticulture

Design of 152-foot steel-framed dome. A. W. Earl and T. F. Chace. 11 diags Eng Rec 70:451-4, 482-4 O '24-31 '14; Same. Eng & Contr 42:314-20 S 30 '14

Designing a steel dome for the horticultural palace. A. W. Earl and T. F. Chace. diags Eng N 74:208-12 J1 29 '15

Framing of the dome of the palace of horticulture. A. W. Earl and T. F. Chace. 11 diags Eng N 74:112-15 J1 15 '15

Spectacular illuminating effects at the Panama-Pacific exposition. 11 Sci Am 112:180-1 F 20 '15

Palace of machinery

Abrasive products at fair. 11 Iron Tr R 57:487 S 9 '15

Palace of mines and metallurgy

Co-operative metallurgical exhibit at the Panama-Pacific international exposition. A. E. Wells and G. H. Clevenger. 11 Met & Chem Eng 13:743-5 O 15 '15

Films and models attract interest in United States steel corporation's exhibit. 11 Iron Tr R 57:402-3 Ag 26 '15

Panama-Pacific exposition. 11 plan Colliery 35: 657-63 J1 '15

Steel corporation at Panama-Pacific exposition. Colliery 35:389-90 F '15

United States steel corporation exhibit at the Panama-Pacific exposition. Iron Age 94: 1425-6 D 17 '14

What the Panama-Pacific international exposition means to the metallurgical and chemical engineer. 11 Met & Chem Eng 13:339-40 My '15

Palace of transportation

Motor car exhibits at the Panama exposition. C. L. Edholm. 11 Horseless Age 36:35-9 J1 14 '15

Transportation exhibits at San Francisco. 11 Elec Ry J 45:504-5 Mr 13 '15

Transportation exhibits at the Panama exposition. W. S. Wollner. Ry Age 58:373-5 F 26 '15

Sewerage

Design of the sewerage system for the Panama-Pacific international exposition. W. C. Willard. diags plan Eng & Contr 42:434-40 N 4 '14

Plumbing at exposition. A. H. Markart. Metal Work 53:837-8 Je 11 '15

State buildings

State buildings at Panama exposition. 11 Bldg Age 37:46-8 My '15

Tower of jewels

Design and construction of the 435-ft. steel framed tower of jewels. F. S. M. Harris. 11 diags Eng & Contr 43:47-54 Ja 20 '15; Same cond. Eng N 73:866-72 My 6 '15; Same cond. Eng Rec 71:112-16 Ja 23 '15

Exterior wooden framing of the tower of jewels. plans Eng & Contr 43:377-9 Ap 28 '15

Transportation

Carrying the Panama-Pacific exposition visitors. 11 Eng N 74:770-1 O 21 '15

Transportation in the fair grounds; intramural railway, auto trains, rolling chairs and moving platform. 11 Elec Ry J 45:754-5 Ap 17 '15

Water supply

Engineering features of the Panama-Pacific international exposition. G. L. Bayley. 11 Am Soc M E J 37:585-91 O '15; Abstract. Eng N 74:845-6 O 28 '15

Public works

Construction progress on the Twin Peaks tunnel. A. J. Cleary. 11 diags Eng N 74:869-71 N 4 '15

New San Francisco has risen from the ruins of 1906. 11 map Eng Rec 71:223-5 F 20 '15
San Francisco shore protection. diags Eng N 74:571 S 16 '15
San Francisco's notable engineering works. 11 Eng Rec 71:235-30 F 20 '15

Rapid transit

Front-end fare collection improves service at San Francisco. H. T. Jones. 11 Elec Ry J 46:512-14 S 18 '15

How the exposition crowds are being handled at San Francisco. Elec Ry J 45:642 Mr 27 '15

Improvements in transit lines to handle exposition traffic. T. A. Cashin. 11 Elec Ry J 46: 518-19 S 18 '15

Municipal street railways. A. J. Cleary. 11 map Eng N 73:320-4 F 18 '15

Stockton street tunnel and Twin Peaks tunnel in San Francisco. A. J. Cleary. 11 map Eng N 73:314-17 F 18 '15

Time-table practice of the San Francisco-Oakland terminal railways. U. S. Slater. Elec Ry J 46:521-3 S 18 '15

Two-car trains on 25 per cent grade. diags Elec Ry J 45:977-8 My 22 '15

Two-mile street railway tunnel at San Francisco. Eng Rec 71:47-8 Ja 9 '15

Sanitary affairs

Garbage and refuse disposal and experiences with incineration at San Francisco. A. J. Cleary. 11 plan Eng N 73:301-4 F 18 '15

Sewerage

San Francisco's sewerage system. A. J. Cleary. 11 diags maps Eng N 73:305-10 F 18 '15

Streets

Boulevard system of San Francisco. J. M. Owens. map Eng N 74:498-9 S 9 '15

Constructing rock tunnel of 50-ft. clear width. Stockton st., San Francisco. B. G. Tilton. 11 diags plan Eng & Contr 43:93-6 F 3 '15

Pavement problems and experience in San Francisco. J. M. Owens. 11 Eng N 72:1180-2 D 10 '14

San Francisco, the exposition city. 11 Good Roads n 5:103-9 S 4 '15

Street pavements, roads and boulevards. A. J. Cleary. 11 Eng N 73:311-13 F 18 '15

Tunnel streets at San Francisco. T. A. Church. Munic J 38:767-8 Je 3 '15

Water supply

Hetch Hetchy water supply project. Eng & Contr 43:sup22-3 Mr 31 '15

Hydraulic fill dam for an earthquake region: work on the Calaveras reservoir of the San Francisco water supply. Sci Am 112:154-4 F 13 '15

Present water-supply of San Francisco. Eng N 73:323 F 18 '15

Probable utilization of privately owned water works at San Francisco in connection with new municipal supply. M. M. O'Shaughnessy. Eng & Contr 42:230-1 S 2 '14

Progress on Hetch Hetchy water-supply. 11 Eng N 74:378 Ag 19 '15

San Francisco's auxiliary water-supply for fire protection. A. J. Cleary. 11 plan diags Eng N 73:290-7 F 18 '15

San Francisco's future water-supply: Hetch Hetchy project. A. J. Cleary. 11 Eng N 73: 298-301 F 18 '15

San Francisco municipal railways

Annual report. 10lec Ry J 45:1231 Je 26 '15

Sanitary chemistry

See also Food—Analysis; Sewage disposal; Water purification

Sanitary engineering

Convention of American public health association sanitary engineering section. Eng Rec 70:sup285-6 D 12 '14

Sanitary engineering in 1914. Engineer 119:31-2, 55-6 Ja 8-15 '15

Science of domestic engineering. T. J. Claffy. Dom Eng 70:7-8 Ja 2 '15

See also Filters and filtration; Heating; Municipal engineering; Plumbing; Public comfort stations; Refuse and refuse dis-

- Sanitary engineering—Continued**
 posal; refuse collection; Sanitation; Sewage disposal; Sewerage; Street cleaning; Ventilation; Water purification; Water supply; Water supply engineering; also American society of sanitary engineering
- Sanitary engineering, American society of.** See American society of sanitary engineering
- Sanitary engineering, New Jersey society of.** See New Jersey society of sanitary engineering
- Sanitary engineers**
 Duties of the practical sanitary engineer. J. Campbell. Metal Work 83:931 Je 25 '15
- Sanitation**
 Construction camp, Elephant Butte, N. M. J. D. Graham. Il diags map Eng N 72:1300-4 D 31 '14
 Country districts need plumbing regulations. F. K. Chew. Metal Work 84:659 N 19 '15
 Economy in life saving; abstract from a report to the American society of municipal improvements. Munic J 39:816-17 O 21 '15
 Improving sanitary conditions on the Ashokan reservoir watershed. G. G. Honness. Eng & Contr 44:213 S 15 '15
 Master plumber's view of sanitation. R. A. Gibson. Metal Work 83:541 Ap 9 '15
 National association of master plumbers sanitary committee's report. Dom Eng 73:112-13 Jl 24 '15
 Old time sanitation problems. Metal Work 84:607-8 N 12 '15
 Relative values in sanitation. Eng & Contr 42:133-5 Ag 5 '14
 Sanitary engineer's views on housing. T. J. Claffy. Il Dom Eng 73:5-6, 45-6 O 2-9 '15
 Sanitation of Iquitos, Peru. G. M. Converse. Il Eng N 73:201 F 4 '15
 Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. diags Dom Eng 72:194-7, 224-6, 254-6, 284-5, 313-15, 338-40 Ag 14-S 18 '15
See also Disinfection and disinfectants; Dust removal; Factory sanitation; Foundry sanitation; Military hygiene; Plumbing; Refuse and refuse disposal; Sanitary engineering; Sewage disposal; Sewerage; Smoke prevention; Ventilation; Water purification; Water supply
- Santa Barbara, California**
 Water supply
 Progress of Santa Barbara water-supply project. K. Q. Volk. Eng N 74:1080-1 D 2 '15
- Santa Fe railroad.** See Atchison, Topeka & Santa Fe railroad
- Santo Domingo.** See Mines and mineral resources—Santo Domingo
- Saratoga Springs, New York**
 Lincoln baths rival continental pools. Il plan Metal Work 84:307-8 S 3 '15
- Sardinia**
 Industries and resources
 Calamine mines of Sardinia. C. W. Wright. Il map Eng & Min J 100:625-8 O 16 '15
 Gennamari mill. C. W. Wright. diags Eng & Min J 100:794-6 N 13 '15
- Sashes**
 Home instruction for sheet metal workers. W. Neubecker. diags Metal Work 81:524-5, 681-2, 718-19; 82:457-8, 615-16, 667-8; 83:498-9, 865-7, 810-4 Ap 10, My 23-29, O 2, N 6, 30 '14, Ap 2, My 7, Je 4 '15
- Saskatchewan**
 Scope of engineering reports and plans for sewerage and sewage disposal works in Saskatchewan. Eng & Contr 42:155-6 Ag 12 '14
- Saskatoon, Saskatchewan**
 Bridges
 Concrete arch bridge at Saskatoon. Il diags Eng N 73:434-6 Mr 4 '15
- Saturated air.** See Air
- Saturators**
 New method and furnace for the determination of the softening temperature of coal ash under fuel-bed conditions. A. C. Fieldner and A. L. Feild. Il diags J Ind & Eng Chem 7:829-35 O '15
- Sault Ste. Marie, Michigan**
 Bridges
 Double-leaf bascule railway bridge. Il diags Engineer 120:246-7 S 10 '15
- Saunders, William Lawrence, 1856-**
 President Am. Inst. M. E. F. W. Iredell. por Eng N 73:389-90 F 25 '15
 Sketch. por Eng M 50:209 N '15
- Sausages**
 New casing for sausages. W. P. Cohoe, E. C. Fox, and A. J. Acton. Sci Am 112:235-4 Mr 6 '15
- Savannah, Georgia**
 Sanitary affairs
 Refuse disposal at Savannah. E. R. Conant. Munic J 38:186-8 F 11 '15
 Wharves
 Design and construction features of the Ocean steamship co.'s terminal at Savannah. Il plans Eng & Contr 44:343-4 N 3 '15
- Saw mills.** See Sawmills
- Sawdust**
 Gas from sawdust. J Ind & Eng Chem 7:542-3 Je '15
- Sawdust as fuel**
 Sub-bituminous coal and sawmill waste in producer plant. G. S. Wilson. Il Power 42:412-3 S 28 '15
- Sawmills**
 Electricity in a modern saw mill. Il Elec R & W Elec N 66:290-2 F 13 '15
 Electricity in the lumber industry. E. F. Whitney. Il diags Am Inst. E. M. Pro 33:1835-53 D '14; Discussion. 34:439-51 Mr '15
 Sawmill engineering. J. E. Noble. plan Power 41:683-4 My 18 '15
 Sawmill for form construction. H. E. Ketchum. Il Eng N 74:986-7 N 18 '15
- Saws**
 Abusing hack saws and cutter wheels. Il Metal Work 84:238 Ag 20 '15
 Automatic band saw sharpener. Il Iron Tr R 56:666 Ap 1 '15
 Band saw for light metal shapes. Il Iron Age 96:85 Jl 8 '15
 Brazing outfit for narrow band saws. F. W. Barrows. Il diag Foundry 43:317-18 Ag '15
 High-speed friction saw for shapes. Il Iron Age 95:92 Ja 7 '15
 Home-made saw for tubing, commutator bars, etc. R. H. Parsons. diags Elec Ry J 45:849 My 1 '15
 New metal band saw. Il Foundry 43:328-9 Ag '15
 Recent high-speed hack saw machine. Il Iron Age 96:519 S 2 '15; Ry Age (Mech ed) 89:544 O '15
 Self-contained friction saw. Il Iron Tr R 56:327-8 F 11 '15
- Safety devices**
 Adjustable guard for circular saws. Il Iron Age 96:877 O 14 '15
 Adjustable saw guard. Il Ry Age (Mech ed) 89:95 F '15
- Scaffolding**
 New scaffold hoist machine. diag Concrete Cem 7:46 Jl '15
 Safety staging hook. D. E. Charlton. diags Eng & Min J 100:311 Ag 21 '15
 Staging hangers for riveters on structural work. Il Eng & Min J 100:677 O 23 '15
 Suspended scaffold for building construction. diags Eng N 73:174-5 Ja 28 '15
See also Shoring and underpinning
- Scales**
 Automatic scales; abstract. F. J. Schlink. Am Soc M E J 37:488 Ag '15
 Direct reading analytical balance. Il Sci Am 113:325-4 O 9 '15
 Heusser multiple weight attachment for chemical balances. W. Heusser. Il Eng & Min J 100:314 Ag 21 '15
 Making a chemist's balance. F. W. Salmon. diags Power 42:617-18 N 2 '15
 Railroad scale testing by the Bureau of standards. Ry R 56:563-4 Ap 24 '15
- Scales, Track.** See Track scales

Schenectady, New York

Sanitary affairs

Municipal garbage-reduction plant. S. Gertz. *Il plan Eng N 73:820-2 Ap 29 '15*

Sewerage

Schenectady's sewage disposal plant; nine shallow imhoff tanks and three acres of sprinkling filters. *Il plans Munic J 38:493-504 Ap 15 '15*

Schenley park. See Pittsburgh—Parks

Scherblus compensator. See Phase advancers

Scholarships and fellowships

Research fellowships in the engineering experiment station, University of Illinois. *Elec R & W Elec'n 65:1225 D 26 '14*

School accounting

School accounting and costs. A. Miller. *J Account 19:487-55 Je '15*

School architecture. See Schoolhouses

School buildings. See Schoolhouses

School houses. See Schoolhouses

School hygiene

School sanitation and students' health. W. H. Smith. *Metal Work 83:601-3 Ap 23 '15*

See also Schoolhouses—Heating and ventilation

School lighting. See Schoolhouses—Lighting

School ships. See Schoolships

Schoolhouses

Addison school, Cleveland, Ohio, and Walker school, Concord, N. H.; views and plans. *Brickb 24:pl 146-50 O '15*

Brick schoolhouse at Pickets, Miss. *Il diag plans Bldg Age 37:27-31 O '15*

Downers Grove kindergarten, Downers Grove, Ill.; views. *Brickb 24:pl 103-5 J '15*

Edward Devotion school, Brookline, Mass. and Vose school, Milton, Mass.; views and plans. *Brickb 24:pl 19-21 F '15*

Eight-room brick schoolhouse. *Il diag plans Bldg Age 37:45-8 Ag '15*

Five examples of cantilevered auditorium balconies. *diag Eng Rec 73:234-5 J '15*

Francis W. Parker open-air school of San Diego; views and plan. *Arch Rec 37:88-90 Ja '15*

Modern schoolhouse; corridors and stairways. W. H. Kilham. *Il plans Brickb 24:39-42 F '15*

Modern schoolhouse; exposure and plan. W. H. Kilham. *Il plans Brickb 24:38-8 Ap '15*

Modern schoolhouse; special features. W. H. Kilham. *Il plans Brickb 24:141-4 Je '15*

Modern schoolhouse: the class room. W. H. Kilham. *plans Brickb 24:3-8 Ja '15*

Modern schoolhouse; wardrobes, toilets, and special rooms. W. H. Kilham. *Il diag Brickb 24:59-62 Mr '15*

Norwood high school, Norwood, Ohio; views and plan. *Brickb 24:pl 44-5 Mr '15*

Plumbing equipment in Jersey high school. *Il Metal Work 84:77+ J '15*

Plumbing work in Kentucky high school. *Il Metal Work 84:146-8 J '15*

School building in Michigan and Connecticut. *Am Inst Arch J 3:437-8 O '15*

See also School hygiene

Cost

Cost of schoolhouse construction, with a proposed unit based on cubical contents. B: C. Baldwin. *Heat & Ven 12:22-7 Je '15*

Modern schoolhouse; cubage and cost. W. H. Kilham. *Il plans Brickb 24:107-10 My '15*

Electric equipment

Government furnishes cheap electricity in southern Idaho. H. B. Walker. *Power 41:228-9 F '15*

Heating and ventilation

Chicago ventilation commission first report. *Il Metal Work 83:633-5+ Ap 30 '15*

Downward ventilation in a Rockford, Ill., schoolhouse; with discussion. C. E. Beery. *Il plans Am Soc Heat & V E 19:63-81 '13*

Experiment in school room ventilation with reduced air supply through individual ducts; with discussion. F: Bass. *Il Am Soc Heat & V E 19:328-60 '13*

Experiment in ventilating a schoolroom. *Il Dom Eng 73:38-41 O 2 '15*

Experiments on humidifying air at the Oliver Wendell Holmes school; with discussion. C: F. Eveleth. *plans Am Soc Heat & V E 19:109-27 '13*

Heating a country school house in Maine. E. B. Harvey. *plans Metal Work 82:735 D 4 '14*

Heating a two-story brick schoolhouse; description of a gravity steam system. *Il plans Bldg Age 37:53-5 Ja '15*

Heating and ventilating Cos Cob school, Greenwich, Conn. *Il plan Metal Work 84:637-8 N 19 '15*

Heating and ventilation of schoolhouses. H. L. Alt. *plans Brickb 24:165-8 J '15*

How to figure school house ventilation. *Dom Eng 72:228 Ag 21 '15*

Plumbing and heating in new Lebanon school, Greenwich, Conn. *Il plan Metal Work 84:13-14 J '15*

Recent tests on recirculation of washed air. G. L. Larson. *Il Metal Work 84:875-7+ N 26 '15*

Recirculating of air in a school in Minneapolis. F: Bass. *Heat & Ven 12:27-30 Mr '15*

Recirculation of air for schools. I. N. Evans. *Heat & Ven 11:46-53 Je '14; 12:43-5 Ap '15*

Report of the committee on schoolroom ventilation. *Am Soc Heat & V E 19:104-8 '13*

Space requirements for boilers of various types in school buildings. T. W. Reynolds. *diag Heat & Ven 12:17-19 J '15*

Standard details of heating and ventilating work. F. G. McCann. *diag plans Metal Work 81:31-3, 125-6, 234-5, 302-3, 363-4, 421-4, 494, 511+, 606-7; 82:273-4, 460, 706-7; 83:140-50, 281-2 Ja 2, 16, F 6, 20, Mr 6, 20, Ap 3-10, My 1, S 4, O 2, N 27 '14, Ja 22, F 19 '15*

Lighting

Safeguarding the eyesight of school children. M. Luckiesh. *bibliog Il Illum Eng Soc 10:181-202 no 2 '15; Abstract. Illum Engr 8:297-9 J '15*

School room lighting. F. L. Godinez. *Il Arch & Bldg 47:365-7, 400-2 O-N '15*

Toilet rooms

Modern plumbing equipment in Cos Cob school, Greenwich, Conn. *Il Metal Work 84:878+ N 26 '15*

Modern schoolhouse; wardrobes, toilets, and special rooms. W. H. Kilham. *diag Brickb 24:60-1 Mr '15*

Modern toilet rooms in public schools. J. Graham. *plans Dom Eng 70:332-4, 402-5 Mr 13, 27 '15*

Plumbing equipment of Montclair, N. J., high school. *Il plan Metal Work 84:483-4+ O '15 '15*

Rational design of sanitary equipment. *Il plan Metal Work 84:587-8 N 5 '15*

Schoolhouses, Portable

Chicago adopts portable schoolhouse idea. *Il plan Metal Work 84:404-5 S 24 '15*

Portable schoolhouses in Chicago. *Il diag Bldg Age 87:37-40 My '15*

Schools. See Correspondence schools and courses; Evening and continuation schools; Trade schools

Schools and shops, Cooperation of

Cooperation between employers and the schools. W: B. Hunter. *Am Soc M E J 37:278-9 My '15*

Co-operative technical schools meet present needs. F. E. Ayer. *Eng N 74:1059-61 D 2 '15*

Learning through doing. *Sci Am 112:624 Je 26 '15*

McComb apprenticeship plan, Illinois Central railroad. H. N. Senev. *Ry R 57:619-20 N 13 '15*

Practicing engineers and industrial education. F: G. Bonser. *Eng N 72:1133-4 D 3 '14*

Type of the new apprenticeship at the Beverly, Mass., industrial school. W. A. O'Leary. *Am Ind 15:26-7 My '15*

Schoolships

Schoolship Grandduke Friedrich August. *Int Marine Eng 20:615-16 N '15*

Schoop metal spray. See Metal coating

Science

- Common aims of science and humanity. A. Schuster. *Engineer* 120:253-3 S 10 '15
Emotionalized science. *Sci Am* 112:172 F 20 '15
Future of science. *Sci Am* S 79:370-1 Je 12 '15
German science: abstract. *Ind Eng* 14:440 N '14
Plea for scientific methods. *Sci Am* 112:62 Ja 16 '15
Political importance of science. *Sci Am* 111:518 D 28 '14
Recent significant developments in science and engineering. Sibley J 29:103-9 Ja '15;
Same. *Sci Am* S 79:82 F 6 '15
Science in the daily press. R. A. Gregory. *Illum Engr* 8:203-7 My '15
Scientific solidarity in wartime. *Sci Am* 112:396 My 1 '15
See also Chemistry; Geography; Geology; Inventions; Mathematics; Radioactivity; Scientific expeditions; Technology; Weights and measures, Zoology

Dictionaries

- Wanted—a polyglot scientific dictionary. *Sci Am* 112:336 Ap 10 '15

Terminology

- Science and lexicography. *Sci Am* 112:78 Ja 23 '15

Science and state

- Awards for new truth. *Sci Am* 113:392 N 6 '15
Practical devices and the lack of capital. C. E. Duryea. *Sci Am* 113:119 Ag 7 '15

Scientific American

- Seventy years of the Scientific American. *II Sci Am* 112:540-3, 546 Je 5 '15

Scientific American medal

- Sixth award of the Scientific American medal for safety devices. W. H. Tolman. *II Sci Am* 112:174 F 20 '15

Scientific education

- England's tardy recognition of applied science. W. R. Whitney. *J Ind & Eng Chem* 7:819-22 O '15

Scientific expeditions

- Roosevelt-Rondon scientific expedition. L. E. Miller. *II Sci Am* S 79:248-9, 268-70 Ap 17-24 '15

Scientific management

- Abolition of scientific management in government shops. L. W. Moffett. *II Iron Tr R* 56:963-6+ My 13 '15
Application of engineering methods to the problems of the executive, director and trustees. H. Godfrey. *Am Soc M E J* 37:334-40 Je '15
Applying scientific management. H. K. Hathaway. *Iron Tr R* 57:739-42+, 787-93 O 14-21 '15; Same. *Foundry* 43:440-4, 502-7+ N-D '15
Brief on management; testimony of Carl G. Barth before the Federal commission on industrial relations. *Iron Age* 96:1065-6 N 4 '15
Business men to investigate Taylor system. *Iron Age* 95:964-5 Ap 29 '15
Construction management. S. E. Thompson and W. O. Lichtner. *II diag W Soc E J* 29:109-29 F '15; Same cond. *Eng & Contr* 43:428-32 My 12 '15; Discussion. *W Soc E J* 20:129-51 F '15

- Co-operative spirit and industrial peace. F. B. Gilbreth and L. M. Gilbreth. *Iron Age* 96:528-30 S 2 '15
Criminal speeding-up system—and some facts. W. Crozier. *Am Ind* 15:30-1 Ja '15
Departmental work planning system at Portland, Ore. F. P. Maize. *II Elec Ry J* 46:565-7 S 18 '15
Economic choice of shovels for handling different classes of material. C. W. Hartley. *Eng & Contr* 43:802-3 Mr 31 '15
Executive's problem; an analysis of what is involved in different forms of management. G. D. Babcock. *Iron Age* 96:419 Ag 19 '15
First principles of shop planning. F. M. Perkins. *II Foundry* 43:866-72 S '15
Government shop management. W. Crozier. *Iron Age* 96:954 O 21 '15

- Individual in modern management. F. B. Gilbreth and L. M. Gilbreth. *Iron Age* 96:802-4 O 7 '15; Excerpts (Practical side of scientific management). *Metal Work* 84:630 N 12 '15

- Labor problems in scientific management. *Iron Age* 94:1369-72 D 10 '14

- Labor union, scientific management and the government. *Ind Eng* 15:6 Ja '15

- Labor vs. scientific management. R. T. Kent. *Iron Tr R* 56:471-5 Mr 4 '15

- Literature of industrial management. J. R. Dunlap. *Eng M* 49:163-6 My '15

- New certificate of character for manufacturers. R. G. Valentine. *Ind Eng* 15:40-3 F '15

- Operating a foundry on a scientific basis: a large Detroit shop specializing in aluminum castings. F. A. Parkhurst. *II Foundry* 43:443-7, 479-86; 44:21-6, 53-8 N '14-F '15

- Principles of scientific management. F. W. Taylor. *Ind Eng* 15:85-9 S '15 (to be cont)

- Rider to army bill. *Iron Age* 95:430 F 18 '15

- Riders to appropriation bills not to work as management opponents desired. *Iron Age* 95:593-4 Mr 11 '15

- Scientific handling of salesmen. *Ind Eng* 14:385-91 O '14

- Scientific management and the labor problem. R. T. Kent. *Ind Eng* 14:418-21 N '14

- Scientific management for the factory of moderate size. D. T. Farnham. *Eng M* 50:46-51 O '15

- Scientific management in a cotton weave room. *Textile World* 49:526-8 Ag '15

- Scientific management in the office. R. T. Kent. *Iron Age* 95:82-6, 142-4 Ja 7-14 '15

- Scientific management under the X-ray. *Iron Age* 95:1236-8 N 25 '15

- Status of scientific management in the war and navy department plants. *Eng & Contr* 43:506 Je 9 '15

- System and its abuse. J. Calder. *Iron Age* 96:1043-4 N 4 '15

- Taylorism and the bonus system. W. L. Myles. *Mach* 21:404-5 Ja '15

- Three position plan of promotion. F. B. Gilbreth and L. M. Gilbreth. *Iron Age* 96:1057-9 N 4 '15

- Ultimate type of management. J. H. Van Deventer. *Eng M* 49:394-401 Je '15

- Value of preliminary sketches and layouts in production work. A. A. Dowd. *diag Horseless Age* 36:232-4 S 1 '15

- Wage systems of scientific management. *Ind Eng* 15:45-50 F '15

- See also Accounting; Bonus system; Cost accounting; Efficiency, Industrial; Employees; Factory management; Foundry management; Machine shop management; Mine management; Motion study; Office management; Printing offices—Management; Purchasing; Railroads—Management; Records; Routing systems; Shop management; Stores systems; Task system; Time study

Scientific research

- Astronomical and mathematical research. Prof. Schlesinger. *Sci Am* S 79:168 Mr 13 '15

- German colonies as outposts of science. *Sci Am* 111:450 D 5 '14

- Knowledge and research. R. W. Raymond. *J Ind & Eng Chem* 7:328-33 Ap '15

- National physical laboratory: annual report. *Engineer* 119:623-4 Je 25 '15

- Rational research. *Sci Am* 112:376 Ap 24 '15

- Relation of physical science to the development of engineering. R. C. Gibbs. Sibley J 29:129-32 Ja '15

- Science in the war and after the war. J. A. Fleming. *Sci Am* S 80:338-9 N 27 '15; Same cond. *Engineer* 120:336-7 O 8 '15

- See also Industrial research; Laboratories

- Scientific terminology. See Science—Terminology

- Scientists
Random reflections on artists and scientists. *Sci Am* 112:329 Mr 6 '15

- Scleroscope
Standardization of scleroscope observations. J. J. Ralph. *diag Mach* 22:52-3 S '15

- Scotch tweed. See Tweed

Scotland

Public works

Institution of civil engineers: presidential address. B: H. Blyth. Engineer 118:438, 458-9, 514-16 N 6-13, 27 '14

Scows

Concrete scow has withstood 4½ years' hard service. Eng Rec 72:71 J1 17 '15
Drill boat which lifts itself clear of the water. Il Eng N 72:1317 D 31 '14

Scrap metal

Classification of old metals. Foundry 43:312-13 Ag '15; Same. Metal Ind n s 13:143 Ap '15
First principles of economy: handling railroad scrap. Ry R 56:443-5 Mr 27 '15
Foundry use of non-ferrous scrap metals. F. M. Perkins. Il Metal Ind n s 13:140-2, 194-7 Ap. My '15

Handling and sale of car wheels, rails and scrap iron. J. P. Alexander. Elec Ry J 45: 245-6 Ja 30 '15

Manganese-bronze. J. B. Rhodes. Metal Ind n s 13:462 N '15
Master blacksmiths' convention: discussion of reclaiming scrap. Ry Age (Mech ed) 89:478 S '15

Modern reclamation plant and scrap yard. Ry R 57:281-4 Ag 28 '15

New press for baling scrap metal. Il Iron Age 95:1059 My 13 '15

Our big scrap heap. Foundry 43:232 Je '15
Philadelphia scrap prices, 1896 to 1914. Iron Age 95:742 Ap 1 '15

Reclamation of scrap on the Great Northern. Il Ry Age 58:967-70 My 7 '15; Same. Ry Age (Mech ed) 89:305-8 Je '15

Recovery of secondary metals. J. P. Dunlop. Metal Works 84:425-4 O 1 '15

Recovery of secondary metals in 1914. Foundry 43:313-15 Ag '15

Re-rolling rail steel. C. A. Tupper. Iron Age 96:471 Ag 26 '15

Sale of scrap metals. B. J. Yungbluth. Elec Ry J 45:381 F 20 '15

Sales of scrap metals. J. P. Alexander. Elec Ry J 45:192-3 Ja 23 '15

Scrap and scrap classification: Railway storekeepers' association committee report. Ry Age 63:1089 My 21 '15; Same. Ry R 56:683-90 My 22 '15

Scrap and scrap classification: Railway storekeepers' association committee report. Ry Age (Mech ed) 89:285 Je '15

Scrap-handling plant of Boston & Albany railroad. Il Eng Rec 70:651-2 D 12 '14; Ry Age 58:745-6 Ap 2 '15

Scrap prices at Chicago, 1903 to 1914. Iron Age 95:15 Ja 7 '15

Standard old metal classification. Iron Age 94:1616-17 D 31 '14

Welding up scrap nickel anodes. Il Elec R & W Elec'n 66:1210-11 Je 26 '15; Same. Eng & Min J 100:19 J1 3 '15; Same. Foundry 43:283-4 J1 '15; Same. Met & Chem Eng 13: 453-4 J1 '15; Same cond. Iron Age 95:1392 Je 24 '15; Same abr. Metal Ind n s 13:297 J1 '15

Where classifying scrap paid: Fort Wayne & Northern Indiana traction co.'s tests. A. W. Redderson. Elec Ry J 46:957-8 N 6 '15

See also Metal waste; National scrap iron and steel association

Scrapers

Bagley scraper for gravel mining in Alaska. L: H. Eddy. Il Eng & Min J 100:257-8 Ag 14 '15

Power scraper for backfilling trenches. Il Eng & Contr 44:215-16 S 15 '15

Screen doors

Screen door which sags. diags Bldg Age 37:53-4 Ag '15

Screening

Handy grizzly for heavy work. K. C. Browne. diag Eng & Min J 98:1045 D 12 '14

Portable screening plants for sand and gravel. Il Concrete Cem 5:263-4 D '14

See also Sewage disposal—Screening

Screens

Circulating water screens. H. Addison. diag Engineer 120:202 Ag 27 '15

Clarifying sewage by fine screens. K. Allen. Il diags Munic J 89:143-5, 186-8, 220-2 J1 29- Ag 12 '15

New traveling screens at Delray. C. F. Hirshfeld. Il diag Power 41:333-4 Mr 9 '15

Notes on screens for gravel washing and screening. W. H. Wilms. diag Eng N 73: 440-1 Mr 4 '15; Same cond. Il Eng 16:80-1 Ag '15

Power operated multi-basket strainer. Il Iron Age 96:1055-6 N 4 '15; Elec W 66:1108 N 13 '15

Revolving screens for sand, gravel and crushed stone. Il Concrete Cem 6:313-14 Je '15

Riensch-Wurl sewage screens, Brooklyn. Il Eng N 73:1224-5 Je 24 '15

Rotary screens remove macro-organisms from Denver's lake water supply. Il Eng Rec 72: 291-2 S 4 '15

Sewage treatment in Germany by means of the Riensch-Wurl rotating screen. Endris. Il Eng & Contr 42:273-6 S 16 '14

Size of products from square and round hole screens. H. A. Roesler. Eng & Min J 99: 493 Mr 13 '15

Specifications for uniform screens for soil tests. Eng N 73:267 F 11 '15

Steam shovel digs gravel for plant at Coleman, Ill. R. P. Duffy. Concrete Cem 7:170 N '15

Tests for screen selection. F. Melnke, jr. Eng & Min J 100:763-4 N 6 '15

Traveling water screens. H: J. Edsall. Il Power 42:123-4 J1 27 '15

Wood screening machine. Il diag Eng & Min J 100:387-8 N 27 '15

Screw driving machines

Machine for removing and driving screws. Il Iron Tr R 56:1115 Je 3 '15; Iron Age 95:1225 Je 3 '15

Special multiple screw driving machine. Il Iron Age 95:495 Mr 4 '15

Screw machines

Automatic machine development. R. E. Flanders. Il Iron Tr R 57:385-384 N 4 '15; Abstract. Iron Age 96:1179 N 18 '15

Automatic shut-off on B. & S. automatic screw machine. E. Whitney. diags Mach 21: 671 Ap '15

Britain six-spindle automatic screw machine. Il diags Mach 21:751-4 My '15; Iron Age 95: 947-8 Ap 29 '15; Iron Tr R 56:919 My 6 '15

Cleveland model G automatic screw machine. Il diags Mach 21:419-21 Ja '15

Double-head automatic for finishing roller bearing rollers. Il diag Mach 21:965 Ag '15

Forming a wire in the automatic screw machine. E. Whitney. diags Mach 21:294-5 D '14

Hardening high speed screw machine tools. R. A. Millholland. Iron Age 96:745 S 30 '15

Index drilling and tapping attachment for Brown & Sharpe automatic screw machine. W. F. Gradolph. Il diags Mach 21:289-90 D '14

Machining castings in the automatic screw machine. E. Whitney. diags Mach 21:331-2 Ja '15

Making aero motor pistons: tool equipment used on Cleveland automatics. D. T. Hamilton. Il diags Mach 21:300-2 D '14

Making fuse parts on Brown & Sharpe automatic and hand screw machines. diags Mach 21:647-8 Ap '15

Perkins automatic screw machine. Il Mach 21: 295 D '14

Reciprocating thread rolling machine. Il Iron Age 94:1283 D 3 '14

Simple magazine attachment. E. Whitney. diags Mach 21:312 Je '15

Simultaneous internal and external forming on screw machine. C. Lamoreaux. diags Mach 21:747-8 My '15

See also Machine tools

Screw propellers. See Propellers

Screw spikes. See Spikes (railroad)

Screw threads

Conflict of one-half-inch thread pitches. J: A. Wood. Mach 22:148 O '15

Pitch diameter of 90-degree threads. H. Smart. diag Mach 21:1011 Ag '15

Screw threads—Continued

Points on making and using threading chasers. *diags Mach 21:1015-16 Ag '15*
 S. A. E. standard threads. *Mach 21:459 F '15*
See also Pipe threads; Thread cutting machines

Screws

Fastening timber guard rails with lag screws. *diag Ry Age 59:125 JI 18 '15*
 Modern plant for rolling iron: St. Louis screw co. H. C. Estep. *II diags plans Iron Tr R 57:82-9+ JI 8 '15*
 Tap and screw limits. *diags Mach 22:54-7 S '15*
See also Screw machines; Screw threads; Thread cutting machines

Sea Call (yacht)

Failure of the hull of the Sea Call. *II Met & Chem Eng 18:884 D 1 '15*
 Three-masted auxiliary schooner yacht Sea Call. *II Sci Am 112:623 Je 26 '15*

Sea power. See Navies; Warships**Sea shells**

Use of beach shells as concrete aggregate. *Concrete Cem 7:72-3 Ag '15*

Sea walls

Curbing the sea at Galveston. H. M. Robert. *II Sci Am 113:288 S 25 '15*
 Curved overhang suggested for Galveston seawall. E. L. Corthell. *Eng Rec 72:426 O 2 '15*
 Design of shore-protection works. R. Bennett. *diags Eng N 74:98-101 JI 15 '15; Abstract Eng M 50:466-8 D '15*
 Effect of Galveston storm on seawall and causeway. R. F. Babbitt. *Eng N 74:427 Ag 26 '15*
 Frisco seawall at Cape Girardeau, Mo. *II Ry Age 58:889-90 Ap 23 '15*
 Galveston adopts plan to strengthen its waterfront defense against future storms. *II diag Eng Rec 72:576-7 N 6 '15*
 Galveston survives hurricane. *II map Eng N 74:424-6 Ag 26 '15*
 Galveston's sea-wall checks hurricane's devastation. E. B. Van de Greyn. *II diags Eng Rec 72:271-5 Ag 28 '15*
 Instance of the parabolic reflector reversed; Galveston sea wall as a sound reflector. L. F. J. Zerbee. *Sci Am 113:235 S 11 '15*
 John B. Hawley confirms view that sea-wall saved Galveston. *Eng Rec 72:276 Ag 28 '15*
 Storm damage to sea walls on California coast. *II diags Eng N 73:720-1 Ap 15 '15*
 Toronto breakwater to curb 10-foot waves. *diags Eng Rec 70:694-6 D 26 '14*
See also Bulkheads

Sea water

Irrigation with fresh water from the sea. E. J. Moynihan. *Sci Am S 79:84-5 F 6 '15*

Seaboard air line

Annual report. *map Ry Age 57:1171-2, 1209-10 D 25 '14*

Organizing the supply department on the Seaboard air line. H. C. Pearce. *Ry Age 58:45-7 Ja 8 '15*

Seals

Insoluble seal for letters. *Sci Am S 79:138 F 27 '15*

Seamanship. See Navigation**Seamen's bill**

Light on the seamen's bill. *Sci Am 113:58 JI 17 '15*

Seamen's church institute, New York

Plumbing system in Seamen's church institute. *II Metal Work 83:412-14 Mr 19 '15*

Searchlights

Conditions determining the candle-power and steadiness of large current arcs for searchlights. H. Ayrton. *Illum Engr 8:78-81 F '15*

Constituent parts of a searchlight, testing etc. C. S. McDowell. *II Am Inst E E Pro 34:195-208 F '15; Abstract and discussion. Elec R & W Elec'n 66:393 F 27 '15; Abstract and discussion. Elec W 65:526-7 F 27 '15; Discussion. Am Inst E E Pro 34:2975-83 D '15*

Electricity in marine work. M. W. Day. *II Gen Elec R 18:509-11 Je '15*

Electricity in the war. *II Elec R & W Elec'n 67:76-8 JI 10 '15*

Experimenting with searchlights. *Sci Am S 80:28 JI 10 '15*

Linemen's non-electric and electric searchlights. *II Elec Ry J 45:472 Mr 6 '15*

Method for determining the range of searchlights. A. Blondel. *Illum Engr 8:85-90, 153-9 F, Ap '15*

Motor searchlights with the British-French forces. *II Elec R & W Elec'n 67:239 Ag 7 '15*

New searchlight for use with dry cells. *II Elec R & W Elec'n 67:209 JI 31 '15*

Portable searchlights for fire departments. L. C. Porter and P. S. Bailey. *II Gen Elec R 18:1144-5 D '15*

Practical and theoretical notes on projectors. A. P. Trotter. *Illum Engr 8:82-4 F '15*

Searchlamp mounted on truck for British navy. *II Elec W 65:1262 My 15 '15*

Searchlight automobile for the Italian army. *II Sci Am 113:273+ S 25 '15*

Searchlight for the United States navy. H. T. Wade. *Sci Am 112:382 Ap 24 '15*

Searchlights and the visibility of distant objects. *Sci Am S 80:87 Ag 7 '15*

Searchlights; some notes on their scientific development and practical applications; with discussion. P. G. Ledger. *II diag Illum Engr 8:53-76 F '15*

Searchlights; the more usual electrical systems of operation. J. F. Crowley. *Illum Engr 8:159-60 Ap '15*

Searchlights; their scientific development and practical applications. *Illum Engr 8:41-3 F '15*

Unusual lighting effects at night pageant. *II Elec R & W Elec'n 67:332-4 Ag 21 '15*

Watching the enemy from the fighting line. *II Sci Am S 80:83-9 Ag 7 '15*

Searles Lake, California

Searles Lake patent protest. *Eng & Min J 99:334-5 F 13 '15*

Seashore

Ripple marks; a study of water action on the seashore. C. Epry. *II map Sci Am S 80:188-91 S 18 '15*

Seaside resorts

Collection and disposal of sewage at seaside resorts. M. A. Pugh. *II diags Eng & Contr 43:175-9 F 24 '15*

Seattle, Washington

Architecture

L. C. Smith building, Seattle, Wash. *II plan Arch & Bldg 46:471-5 D '14*

Harbor

Panama canal and the ports of the Pacific. A. J. Quigley. *II map Eng M 48:811-16 Mr '15*

Port development at Seattle. P. P. Whitham. *II diags map Eng N 73:476-81 Mr 11 '15*

Lighting

Seattle municipal lighting plant. W. L. Kidston. *II plans Power 41:182-5 F 9 '15*

Manufacturers' exhibit and exchange

Seattle industrial exhibit. *II Iron Age 96:194-5 JI 22 '15*

Ordinances, etc.

Ordinances regulating street excavating—replacement by city. *Munic Eng 48:116-18 F '15*

Public works

Sea water to rise into fresh-water canal. P. Whitham. *II map Eng N 74:246-7 Ag 5 '15*

Rapid transit

Double trolley system in Seattle. H. J. Kennedy. *II Elec Ry J 45:128-9 Ja 16 '15*

Municipal ownership in Seattle. *Elec Ry J 44:1311 D 12 '14*

New cars of Seattle municipal railway. H. J. Kennedy. *II diag Elec Ry J 44:1284-8 D 12 '14*

Sewerage

Sewer gages and maximum flow in a Seattle outfall. H. D. Stillman. *map Eng N 74:832-4 O 28 '15*

Seattle, Washington—Continued

Water supply

Leakage from Cedar lake reservoir, Seattle water-supply. C. E. Fowler. II map plan Eng N 73:112-15 Ja 21 '15

Seawalls. See Sea walls

Secondary batteries. See Storage batteries

Secondary metals. See Scrap metal

Secret reserves. See Accounting

Securities

Book accounts as security for loans. H. J. Buckley. Metal Work 83:237 F 5 '15

See also Bonds; Negotiable instruments; Railroads—Securities

Seeds

Occurrence and significance of manganese in the seed coat of various seeds. J. S. McHargue. Am Chem Soc J 36:2532-6 D '14

Seed supply and the war. G. E. Mitchell. II Sci Am 111:488 D 12 '14

Seepage

Evaporation and seepage from irrigation reservoirs. K. A. Heron. II Eng N 74:294-5 Ag 12 '15

How to express seepage losses from irrigation canals. S. Fortier. Eng N 73:1128-9 Je 10 '15

Losses in concrete and mortar lined canals. H. D. Newell. Eng Rec 72:21 J1 3 '15; Same abr. Eng & Contr 44:22 J1 7 '15

Seepage develops at Cedar river reservoir. Eng Rec 71:62 Ja 9 '15

Transmission losses in unlined irrigation channels. S. Fortier. Eng N 73:1060-3 Je 3 '15

Selby smelter commission

Report of the Selby smelter commission. J Ind & Eng Chem 7:41-5 Ja '15; Same cond. Eng & Min J 98:1075-8 D 19 '14

Selenium

Constructing selenium cells. Sci Am 112:201 F 27 '15

Construction of selenium cells. S. Wein. Sci Am 112:403 My 1 '15

Estimation of selenium in sulfur. W. Smith. J Ind & Eng Chem 7:849-50 O '15

Galvanic cell that reverses its polarity when illuminated. A. A. Campbell. Sci Am S 80:66 J1 31 '15

Mechanical eye bringing sight to the blind; a description of the crystal photophone. L. E. Dodd. II Sci Am 113:138+ Ag 14 '15

Selenium cell making. Sci Am S 79:187 Mr 20 '15

Selenium in the production of colored glass. S. Wein. Sci Am 112:361 Ap 17 '15

Sellers, Matthew Bacon

Sketch. por Eng M 50:200-1 N '15

Selling. See Salesmen and salesmanship

Selvages

Rolled selvages. Textile World 49:666-7 S '15

Semaphores

Semaphore with automatic whistle to direct street traffic in San Francisco. II Elec Ry J 45:671 Ap 3 '15

Semi-carbazide

Action of monochloroacetic acid on semi-carbazide and hydrazine. J. R. Bailey and W. T. Read. Am Chem Soc J 36:1747-66 Ag '14

Septic tanks

Another septic-tank decision. Eng N 74:667 S 30 '15

Concrete septic tanks for country houses. diag Concrete Cem 6:sup91 Ap '15

Construction and operation of septic tank. W. H. Chapman. diag Metal Work 83:636-8+ Ap 30 '15

Construction of concrete septic tanks. F. H. Wilson. diag Metal Work 82:762+ D 11 '14

Design of sewage system for residences. D. W. Bingham. Metal Work 82:730 D 4 '14

Explosion in Pasadena septic tank. II Metal Work 84:464 O 8 '15

Septic tank and sewage disposal. B. J. Ashley. Metal Work 84:567 O 29 '15

Septic tank and sewage disposal. Metal Work 84:652-3 N 19 '15

Septic tank explosion at Florence. N. C. M. Maffitt. Eng N 73:410-11 F 25 '15

Septic tank for underground latrine. H. G. Pickard. diag Eng & Min J 99:149 Ja 16 '15

Sewage disposal by means of the septic tank. J. Graham. diag Dom Eng 73:198-200 N 13 '15

Sewage disposal by septic tank systems. W. H. Chapman. diag Dom Eng 71:94-6 Ap 24 '15

Sewage disposal for country homes. diag plans Bldg Age 37:63-5 S '15

Sewage disposal in rural country districts. B. D. Colby. Metal Work 84:341-3 S 10 '15

Sewage disposal methods in rural districts. diag Metal Work 83:672-5, 698-4+ My 7-14 '15

Sewage disposal system for suburban home. E. D. Rich. diag Metal Work 84:644-6 N 19 '15

Theory and practice in sewage disposal; septic tank design and construction. D. W. Bingham. diag Metal Work 83:345-6+ Mr 5 '15

Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. diag Dom Eng 72:313-15, 338-40 S 11-18 '15

Serbia. See Servia

Serum therapy

Garden of serpents in the Serotherapeutic institute of Brazil. J. Boyer. II Sci Am 112:447 My 15 '15

New method of disinfecting wounds. Sci Am S 80:111 Ag 14 '15

Servia

Present geographical position of Serbia. J. Cvijic. Sci Am 112:219 Mr 6 '15

Settlers, Slag. See Slag settlers

Settling ponds

Settling-pond sludge box. II Eng & Min J 98:1139 D 26 '14

Sewage

Establishing and enforcing a British standard for sewage effluents. Eng N 72:1325 D 31 '14

Sewer construction in Chicago, Ill., with a ladder type excavator. S. E. Bates. II Munic Eng 49:193-5 N '15

Waste greases from sewage. Metal Work 84:236 Ag 20 '15

See also Sewage aeration; Sewage disposal; Sewage flow; Sewage pumping; Sewage sampling; Sewage sludge; Sewage tanks; Sewer pipes; Sewerage; Water pollution

Testing

Analytical methods for the control of sewage-treatment works. Eng N 73:64-5 Ja 14 '15

Brooklyn sewage-aeration and activated-sludge experiments. E. J. Fort. II diag Eng N 74:214-17 J1 29 '15

Comparison of methods for determining putrescibility or oxygen demand. F. E. Hale and T. W. Melia. J Ind & Eng Chem 7:760-4 S '15

Decatur, Ill. installs plant for sewage tests. II Eng Rec 71:495-6 Ap 17 '15

Determination of the biochemical oxygen demand by the saltpeter method in stock-yards, tannery and corn products wastes. A. Lederer. J Ind & Eng Chem 7:514-16 Je '15

Electrolytic sewage treatment. Elmhurst, Borough of Queens, New York city. Munic J 39:551-4 O 7 '15

Electrolytic sewage treatment plant at Durant, Oklahoma. W. L. Benham. II diag Munic Eng 49:141-6 O '15

Operation of sewage disposal plants. F. E. Daniels. Munic J 37:553, 735-8, 879-80 O 15, N 18, D 17 '14

Recommended tests for use in laboratory control of sewage works operation. Eng & Contr 43:3-4 Ja 6 '15

Sewage works operation: report of a committee of the American public health association. Munic J 37:882-3 D 17 '14

Tests controlling sewage plant operation. Eng Rec 70:674-5 D 19 '14

Sewage aeration

Activated sludge and the Baltimore sewage experiments. G. J. Requardt. diag Eng Rec 72:23 J1 3 '15

Activated sludge and the Baltimore sewage experiments. O. J. Wilkinson. Eng Rec 72:640 N 20 '15

Sewage aeration—Continued

- Activated sludge and the Baltimore sewage experiments. W. S. Coulter. *diag Eng Rec* 71: 784 Je 19 '15
- Activated-sludge experiments at Milwaukee. Wis. T. C. Hatton. *diags Eng N* 74:134-7 J1 15 '15
- Activated-sludge experiments at Urbana, Ill. *Eng N* 74:1096-7 D 2 '15
- Activated sludge experiments in Canada. R. O. Wynne-Roberts. *Munic Eng* 49:68-9 Ag '15
- Activated sludge in America: an editorial survey. M. N. Baker. *il diag Eng N* 74:161-71 J1 22 '15; *Abstract. Eng M* 49:931-3 S '15
- Activated sludge sewage disposal. *il Munic J* 38:504-5 Ap 15 '15
- British engineer submits an activated-sludge query. O. J. Wilkinson. *Eng N* 74:948 N 11 '15
- Brooklyn sewage-aeration and activated-sludge experiments. E. J. Fort. *il diag Eng N* 74: 214-17 J1 29 '15
- Choosing air compressors for activated-sludge tanks. C. H. Nordell. *Eng N* 74:904-6 N 4 '15
- Co-operation sought in conducting activated sludge experiments at Baltimore. L. C. Frank and C. W. Hendrick. *diag Eng Rec* 71:521-2 Ap 24 '15
- English experiments on sewage aeration reviewed as preliminary to Baltimore tests. L. C. Frank. *Eng Rec* 71:288-9 Mr 6 '15
- Purification of sewage by aeration in the presence of activated sludge. E. Bartow and F. W. Mohman. *J Ind & Eng Chem* 7:318-20 Ap '15; *Same. il Eng & Contr* 43:310-11 Ap 7 '15; *Same. Eng N* 73:647-8 Ap 1 '15; *Same. Eng Rec* 71:421-2 Ap 3 '15
- Sewage aeration at Lawrence and Manchester compared. H. W. Clark. *Eng Rec* 71:367-8 Mr 20 '15
- Treatment of sewage by aeration in the presence of activated sludge. E. Bartow. *il Met & Chem Eng* 13:901-4 D 1 '15
- World's first full-scale plant for the treatment of sewage by the activated sludge process. Milwaukee, Wis. T. C. Hatton. *diags plan Eng & Contr* 44:322-7 O 27 '15; *Same cond. Eng Rec* 72:481-4 O 16 '15; *Abstract. Munic J* 39:776-7 N 18 '15
- Sewage disposal**
- Additions to the Baltimore sewage-works. *il diag Eng N* 74:278-9 Ag 5 '15
- Advances in sewage disposal. G. W. Fuller. *Eng Rec* 71:10-11 Ja 2 '15
- Akron is building sewage and garbage disposal plants. *plan Eng Rec* 71:63 Ja 9 '15
- Albany sewage-disposal works. J. H. Gregory. *plans Eng N* 74:692-5 O 7 '15
- Albany's sewage treatment plant; sixteen Imhoff tanks and eight sludge beds. *il diags Munic J* 38:837-40 Je 17 '15
- Chicago should no longer depend on sewage dilution. *Eng Rec* 72:394 S 26 '15
- Collection and disposal of sewage at seaside resorts. M. A. Pugh. *il diags Eng & Contr* 43:175-9 F 24 '15
- Collection and treatment of sewage in Philadelphia. *Eng & Contr* 42:205-7 Ag 26 '14
- Collection and treatment of sewage in their relation to the city of Philadelphia. G. S. Webster. *Boston Soc C E J* 1:277-89 My '14
- Committee outlines best methods for sewage works operation. *Eng Rec* 72:316-17 S 11 '15
- Construction and operation of Gloversville sewage works. H. P. Paddy and H. J. Haumer. *il diags plan Eng N* 74:744-7, 780-1 O 14-21 '15
- Converting old septic tank and contact beds into two-story tank and sprinkling filters at Moorestown, N. J. A. Potter. *il plans Eng & Contr* 42:478-8 N 18 '14
- Data and discussion on the handling of sewage sludge. *Eng & Contr* 43:4-5 Ja 6 '15
- Degree of purification desirable and practicable in sewage treatment plants in Iowa. L. Higgins. *Eng & Contr* 43:479-80 My 26 '15
- Design, cost and operation of new sewage treatment plant at the state hospital, Warren, Pa. P. E. Mebus and F. R. Berlin. *plans Eng & Contr* 43:265-8 Mr 24 '15
- Design of sewage systems for residences. D. W. Bingham. *Metal Work* 52:730 D 4 '14
- Design of two residential sewage treatment plants, including settling tanks of Imhoff type. S. A. Greeley. *il diags plans Eng & Contr* 42:565-7 D 16 '14
- Disposal of Greater New York's sewage; general plans. C. E. Gregory. *Munic J* 39: 693-4 N 4 '15
- Experience in Germany with combined sedimentation and digestion tanks and separate sludge digestion tanks. K. Thumm and E. C. Reichle. *Eng & Contr* 42:389-42 O 7 '14; *Same cond. (Preliminary report on Emscher tanks and kindred sewage-clarification processes). Eng N* 72:1306-8 D 31 '14
- Future sanitary problem of Chicago; symposium. W. Soc E J 19:757-76 O '14
- Handling of sewage sludge; abstracts. G. S. Webster. *Am Soc M E J* 37:96-7 F '15; *Munic J* 38:222-4 F 18 '15; *Discussion. Am Soc M E J* 37:97-8 F '15
- Imhoff tanks and sprinklers for sewage of Brighton district, Rochester, New York. *diags plan Eng Rec* 71:679-82 My 29 '15
- Inoffensive sewage disposal. R. Hering. *plan diags Munic Eng* 43:127-9 F '15
- Low river flow exacting for Columbus sewage works. *Eng Rec* 71:492 Ap 17 '15
- Main drainage works proposed for New York. G. A. Soper. *il maps Boston Soc C E J* 1:31-66 F '14
- Maintenance of sewers and disposal works demands treatment of injurious trade wastes. W. L. Stevenson. *Eng Rec* 71:256-60 F 27 '15
- Making over a small sewage-treatment plant at Morristown, N. J. *il diag Eng N* 73:208-9 F 4 '15
- Marysville, Ohio, sewage-treatment plant; screening, two-story sedimentation tanks, crushed-stone contact beds and intermittent sand filters. E. D. Barstow. *Eng Rec* 72:636-7 N 20 '15
- Ninth and final reports of the Royal commission on sewage disposal of Great Britain. *Eng & Contr* 43:478-9 My 26 '15
- Observations of some European water purification and sewage disposal plants. E. Bartow. *il Am Water Works Assn J* 2:18-24 Mr '15
- Operating records of Atlanta sewage treatment plant show adequate degree of purification. C. C. Hommon. *il Eng Rec* 72:4-7 J1 3 '15
- Operating sewage disposal plants. *Munic J* 38: 66 Ja 21 '15
- Operation of sewage disposal plants. F. E. Daniels. *il Munic J* 36:67-71, 337-40, 389-92, 529-33, 733-6, 885-8; 37:67-9, 235-8, 386-8, 553-3, 735-8, 879-82 Ja 15, F 19, Mr 19, Ap 16, My 21, Je 18, J1 16, Ag 20, S 17, O 15, N 19, D 17 '14
- Operation of the Plainfield sewage-works. J. R. Downes. *Eng N* 73:234-5 F 4 '15
- Ornamental plants on sewage bed. Harrison, N. Y. A. Potter. *il Eng N* 74:412 Ag 26 '15
- Philadelphia sewage report. *Eng N* 73:1051-2 My 27 '15
- Philadelphia's sewage disposal problem. W. L. Stevenson. *il Metal Work* 53:738-9 My 21 '15
- Placing a neglected sewage treatment plant in successful operation at Monticello, Arkansas. G. A. Watkins. *il plan Eng & Contr* 43: 247-8 Mr 17 '15
- Plumbing installation and sewage disposal. C. A. Whittemore. *Brickb* 24:115-18, 137-40, 171-3 My-J1 '15
- Probable future of various sewage treatment methods. G. W. Fuller. *Eng & Contr* 42:204-5 Ag 26 '14
- Processes available for the treatment of industrial wastes. *Eng & Contr* 43:363-5 Ap 21 '15
- Recommend filtering Chicago water and progressive disposal of sewage. G. A. Soper, J. D. Watson and A. J. Martin. *Eng Rec* 71:709 Je 5 '15
- Recommended general procedure in sewage works operation. *plan Eng & Contr* 42:567-8 D 16 '14
- Reject untried sewage treatment methods for Decatur, Ill. L. Pearce and S. A. Greeley. *Eng Rec* 71:775-6 Je 19 '15
- Remodeling of septic tanks into Imhoff tanks eliminates odors from land irrigation. *il diags plan Eng Rec* 71:747-8 Je 12 '15
- Royal commission on sewage disposal. *Engineer* 119:378-9 Ap 16 '15
- Sanitary engineering in 1914. *Engineer* 119:31-2, 55-6 Ja 8-15 '15

Sewage disposal—Continued

Schenectady's sewage disposal plant; nine shallow Imhoff tanks and three acres of sprinkling filters. *Il plans Munic J 88:499-504 Ap 15 '16*

Sewage disposal at Baltimore water purification plant. J. W. Armstrong. *Il diag plan Munic J 39:261-2 Ag 19 '15*

Sewage disposal at Bloomington; abstract. U. S. Hanna. *Munic J 37:883-4 D 17 '14*

Sewage disposal at Lethbridge, Alberta. A. C. D. Blanchard. *Munic Eng 48:217-20 Mr '15*

Sewage disposal by septic tank systems. W. H. Chapman. *diags Dom Eng 71:94-6 Ap 24 '15*

Sewage disposal in Chilliwack. B. C. D. P. Dunn. *diags Munic J 38:687-9 My 20 '15*

Sewage disposal in Maryland; advantages of joint sewerage and sewage treatment systems for small towns. *Munic J 38:842-4 Je 17 '15*

Sewage disposal plant at Aberdeen, South Dakota; with discussion. W. G. Potter. *Il plans W Soc E J 19:788-805, pl 1-8 O '14; Same. Eng & Contr 43:37-8 Ja 13 '15; Same cond. Metal Work 84:214-17 Ag 13 '15*

Sewage disposal plant for Akron. *Il diags plan Munic J 39:71-4, 112-14 Jl 15-22 '15*

Sewage disposal system for private house. G. E. Watkins. *diags Metal Work 83:381-2 Mr 12 '15*

Sewage disposal without odor. R. Hering. *Munic Eng 48:181-5 Mr '15*

Sewage disposal works at Fitchburg, Mass. D. A. Hartwell. *Il fold maps Boston Soc C E J 2:203-22 Je '15; Excerpt (Costs of the Fitchburg sewage treatment works) Eng & Contr 48:566 Je 23 '15*

Sewage disposal works at Leeds. *maps Engineer 118:501-2 N 27 '14*

Sewage purifying plant at Ostend. *Sci Am 112: 50 Ja 9 '15*

Sewage-treatment and garbage-reduction works for Akron, Ohio. *Eng N 78:147 Ja 28 '15*

Sewage-treatment plant at Calvert, Tex. T. L. Fountain. *Il diags plan Eng N 78:930-4 My 13 '15*

Sewage treatment plant for a small sanatorium. R. F. MacDowell. *Il diags Eng N 73: 1014-16 My 27 '15*

Sewage treatment; report of committee of American public health association. *Il Munic J 38:7-10 Ja 7 '15*

Sewage-works of Marysville, Ohio. *diags Eng N 73:484 Mr 11 '15*

Sewage-works operation. *Eng N 78:110 Ja 21 '15*

Sewage works operation. *Munic J 39:434 S 16 '15*

Small sewage treatment plant: Home for the indigent of Delaware county, Pa. P. E. Mebus and F. R. Berlin. *Il diag plan Munic J 37:877-9 D 17 '14*

Steam disinfection for sewage on common carriers. *diag Eng Rec 71:43 Ja 9 '15; Same (Sewage treatment on trains and boats). Eng M 48:917-18 Mr '15*

Suggestions on the operation of small sewage treatment plants. *Eng & Contr 43:82-3 Ja 27 '15*

Theory and practice in sewage disposal; septic tank design and construction. D. W. Bingham. *diag Metal Work 83:345-6+ Mr 5 '15*

Three districts for disposal of Cleveland's sewage. R. W. Pratt. *Eng Rec 71:422 Ap 3 '15*

Two years' tests indicate best treatment for Chicago stock yards wastes. *Il Eng Rec 71:266-8 F 27 '15*

West End sewage-treatment works, Hamilton, Ont. B. E. T. Ellis. *diags plans Eng N 78:424-8 Mr 4 '15*

World's first full-scale plant for the treatment of sewage by the activated sludge process. Milwaukee, Wis. T. C. Hatton. *diags plan Eng & Contr 44:322-7 O 27 '15; Same cond. Eng Rec 72:481-4 O 16 '15; Abstract. Munic J 89:776-7 N 18 '15*

See also Imhoff tanks; Plumbing; Refuse and refuse disposal; Septic tanks; Sewage-Testing; Sewage aeration; Sewage irrigation; Sewage pumping; Sewage tanks; Sewerage; Water pollution; Water purification

Disinfection

Automatic device controls hypochlorite application. E. E. Ludwick. *diags Eng Rec 72: 103-4 Jl 24 '15*

Electrolytic treatment

Electrolytic method of sewage disposal. J. C. Olsen. *Il Met & Chem Eng 13:735-9, 793-7 O 15-N 1 '15*

Electrolytic sewage treatment. Elmhurst, Borough of Queens, New York city. *Munic J 38:504-5 O 7 '15*

Electrolytic sewage treatment plant at Durant, Oklahoma. W. L. Benham. *Il diags Munic Eng 49:141-6 O '15*

Experiments

Activated-sludge experiments at Urbana, Ill. *Eng N 74:1096-7 D 2 '15*

Activated sludge in America: an editorial survey. M. N. Baker. *Il diag Eng N 74:164-71 Jl 22 '15; Abstract. Eng M 49:931-3 S '15*

Activated sludge sewage disposal. *Il Munic J 38:504-5 Ap 15 '15*

Co-operation sought in conducting activated sludge experiments at Baltimore. L. C. Frank and C. W. Hendrick. *diag Eng Rec 71:521-2 Ap 24 '15*

Design of the sewage treatment experimental plant at Brooklyn, N. Y. G. T. Hammond. *Eng & Contr 42:527-30 D 2 '14; Same cond. Munic Eng 47:437-36 D '14*

English experiments on sewage aeration reviewed as preliminary to Baltimore tests. L. C. Frank. *Eng Rec 71:288-9 Mr 6 '15*

Milwaukee sewerage problem and the sewage treatment testing station. T. C. Hatton. *Eng & Contr 42:368-9 O 14 '14*

Purification of sewage by aeration in the presence of activated sludge. E. Bartow and F. W. Mohlman. *J Ind & Eng Chem 7:318-20 Ap '15; Same. Il Eng & Contr 43:310-11 Ap 7 '15; Same. Eng N 73:647-8 Ap 1 '15; Same. Eng Rec 71:421-2 Ap 3 '15*

Sewage aeration at Lawrence and Manchester compared. H. W. Clark. *Eng Rec 71:367-8 Mr 20 '15*

Treatment of sewage by aeration in the presence of activated sludge. E. Bartow. *Il Met & Chem Eng 13:901-4 D 1 '15*

Filtration

Algae growths cover Atlanta sewage filters. C. C. Hommon. *Il Eng Rec 72:335 S 11 '15*

Concrete blocks cover sewage filter under-drains. *Il Eng Rec 71:333 Mr 13 '15*

Constructing the Fitchburg sewage-works. F. A. Marston. *Il diags Eng N 74:4-6 Jl 1 '15*

Design feature of new sewerage system and sewage disposal works for Cleburne, Texas. R. E. McDonnell. *diags plans Eng & Contr 44:72-5 Jl 28 '15*

Economics of sewage filters. G. W. Fuller. *Eng & Contr 42:369-71 O 14 '14*

Economy of deep sewage filters explained on basis of "held" water and hydraulics. H. W. Clark. *Eng Rec 72:477-8 O 16 '15*

Method of adjusting sewage sprinklers. A. T. Nabstett. *diag Eng N 74:219-20 Jl 29 '15*

Sewage-works of Morristown, N. J. C. Potts. *Il diags plan Eng N 73:1105-8 Je 10 '15*

Typical Iowa sewage treatment plant and its proper operation. *Eng & Contr 44:6-7 Jl 7 '15*

Variable-capacity hotel sewage-treatment plant. G. L. Robinson. *Il plan Eng N 74:346-7 Ag 19 '15*

Regulation

State control of sewage-treatment works. *Eng N 74:591-2 S 28 '15*

Screening

Adoption of fine screening at Daytona, Fla. *Eng & Contr 43:5-6 Ja 6 '15*

Clarifying sewage by fine screens. K. Allen. *Il diags Munic J 39:143-5, 186-8, 220-2 Jl 29-Ag 12 '15*

Fine screening adopted in preference to sedimentation and separate sludge digestion, on cost basis, at Brooklyn. *diag Eng & Contr 44:7 Jl 7 '15*

Riensch-Wurl sewage screens, Brooklyn. *Il Eng N 73:1224-5 Je 24 '15*

Sewage disposal—Screening—Continued

Sewage pumping, screening and sterilizing station at Daytona, Fla.; specifications. plans Eng & Contr 42:525-7 D 2 '14
Sewage screening at Daytona, Fla. Munic J 27:884 D 17 '14

Sewage treatment in Germany by means of the Riensch-Wurl rotating screen. Endris. 11 Eng & Contr 42:273-8 S 16 '14

Sewage disposal, Rural

City sewers for country homes. plan Dom Eng 72:351 S 18 '15

Sewage disposal for country homes. diag plans Bldg Age 37:63-5 S; 65-7 O '15

Sewage disposal in rural country districts. E. D. Colby. Metal Work 84:341-3 S 10 '15

Sewage disposal methods in country places. T. Horton. diag Metal Work 84:879-81 N 28 '15

Sewage disposal methods in rural districts. diag Metal Work 83:672-5, 693-4+ My 7-14 '15

Sewage disposal system for suburban home. E. D. Rich. diag Metal Work 84:644-6 N 10 '15

Three residential sewage-treatment plants near Cleveland. R. F. MacDowell. Eng N 74: 56-7 JI 8 '15; Abstract. Concrete Cem 7:81 Ag '15

Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. diag Dom Eng 72:313-15, 338-40 S 11-18 '15

Sewage ejectors

Beggs electrically controlled automatic sewage ejector system. plan Eng & Contr 43:524 Je 9 '15; Eng Rec 71:699 My 29 '15; Power 42: 43 JI 13 '15

Efficiency test of a Shone ejector plant. C. S. Moore. diag Eng & Contr 43:564-5 Je 23 '15; Same. Munic J 39:76-8 JI 15 '15

Sewage farms. See Sewage irrigation**Sewage flow**

Automatic sewage-pumping and metering station, Providence, R. I. A. A. Wood. 11 plans Eng N 74:293-4 Ag 12 '15

Devices for measuring the flow of sewage. E. Wright, Jr., and others. 11 diag Boston Soc C E J 1:439-54 O '14; Same. Eng & Contr 43:508-11 Je 9 '15

Dye for measuring sewage flow. F. E. Daniels. Munic J 39:550-1 O 7 '15

Method and results of making sewage gagings at Berkeley, Calif. T. A. Bither. plan Eng & Contr 43:565-6 Je 23 '15

Run-off from sewer areas; final report of committee. biblog 11 diag Boston Soc C E J 1:291-382 Je '14; Abstract. Munic J 37:73-4 JI 16 '14

Sewage measurement and automatic control of storm overflow at Pawtucket, R. I. G. A. Carpenter. 11 diag Boston Soc C E J 1:419-27 O '14

Sewer gaging at Seattle in the light of St. Louis gagings. W. W. Horner; E. D. Sullivan. Eng N 74:1091-3 D 2 '15

Sewer gagings and maximum flow in a Seattle outfall. H. D. Sullivan. map Eng N 74: 832-4 O 28 '15

Simple and efficient recording gage for weir measurements. D. E. Adams and E. I. Roberts. 11 diag Eng N 73:1135-6 Je 10 '15

Simple and efficient recording gage for weir measurements. 11 diag Eng N 73:829-31 Ap 29 '15

Venturi meter for sewage measurement. C. G. Richardson. 11 diag Boston Soc C E J 1:429-37 O '14

Sewage irrigation

How the city of Nottingham, England, solved its sewage disposal problem. C. M. Hitch. Dom Eng 72:377-8 S 25 '15; Same. Metal Work 84:399 S 24 '15

Sewage disposal at a profit in Nottingham, England. Sci Am 113:442 N 20 '15

Sewage pumping

Automatic sewage-pumping and metering station, Providence, R. I. A. A. Wood. 11 plans Eng N 74:293-4 Ag 12 '15

Baltimore sewage-pumping plant. W. O. Rogers. 11 Power 41:76-8 Ja 19 '15

Boston's new sewage pumping station. W. B. Conant. 11 Munic J 39:775-8 N 18 '15

Constructing Passaic valley pumping station. 11 plan Munic J 33:341-4 Mr 18 '15

Constructing pumping station in unbraced cofferdam formed by outside walls. 11 plans Eng Rec 71:292-4 Mr 6 '15

Fairview sewage-pumping station. T. Wilson. 11 plan Power 41:886-7 Mr 2 '15

First section of Sacramento trunk sewer completed. Eng Rec 71:461 Ap 10 '15

Sewage collection and pumping systems on low-lying Park Point near Duluth, Minn. diag Eng & Contr 43:309-10 Ap 7 '15

Sewage pumping plants; brief descriptions of plants operating in seventy-five cities. Munic J 38:358-62 Mr 18 '15

See also Sewage ejectors

Sewage purification. See Sewage disposal

Sewage sampling

Obtaining samples of sewage and sewage liquids for testing. G. B. Kershaw. Eng & Contr 42:342-4 O 7 '14

Sampling at experimental sewage treatment plant at Chicago stockyards. Eng & Contr 43:83 Ja 27 '15

Sewage sludge

Can sewage sludge be made valuable as a fertilizer? Eng N 73:593 Mr 25 '15

Co-operation sought in conducting activated sludge experiments at Baltimore. L. C. Frank and C. W. Hendrick. diag Eng Rec 71:521-2 Ap 24 '15

Data and discussion on the handling of sewage sludge. Eng & Contr 43:4-5 Ja 6 '15

Drying of sludge and its further use; abstract. H. Hermanns. diag Am Soc M E J 37:51-2 Ja '15

Experience in Germany with combined sedimentation and digestion tanks and separate sludge digestion tanks. K. Thumm and E. C. Reichle. Eng & Contr 42:333-42 O 7 '14; Same cond. (Preliminary report on Emscher tanks and kindred sewage-clarification processes). Eng N 72:136-8 D 31 '14

Handling of sewage sludge; abstracts. G. S. Webster. Am Soc M E J 37:95-7 F '15; Munic J 38:222-4 F 18 '15; Discussion. Am Soc M E J 37:97-8 F '15

Measuring the drainability of Emscher tank sludge. W. L. Stevenson. 11 Eng & Contr 44: 312 S 15 '15; Same. Munic J 39:427-8 S 16 '15; Same cond. Eng N 74:566 S 16 '15

Saving the grease in sewage. Sci Am 113:305 S 4 '15

Sewage disposal without odor. R. Hering. Munic Eng 43:181-5 Mr '15

Treatment of sewage by aeration in the presence of activated sludge. E. Bartow. 11 Met & Chem Eng 13:901-4 D 1 '15

See also Sewage aeration; Sewage disposal

Sewage tanks

Sewage-intercepting chamber and settling tank for the Illinois state training school for girls, at Geneva, Ill. diag Eng N 72:1202-3 D 17 '14

Variable-capacity hotel sewage-treatment plant. G. L. Robinson. 11 plan Eng N 74:346-7 Ag 19 '15

See also Emscher tanks; Imhoff tanks; Septic tanks

Sewage testing. See Sewage—Testing**Sewer air**

Investigation of sewer air following Boston explosion. H. W. Clark. Eng Rec 70:606-7 D 5 '14

Sewer cleaning

New sewer-cleaning machine. 11 Eng N 73: 591-2 Mr 25 '15

Preventing and removing dirt in sewers. Munic J 38:68 Ja 21 '15

Sewers cleaned with scrapers to pass hall test. C. A. Bryan. 11 Eng Rec 70:698-9 D 26 '14

Water power sewer cleaning device. 11 Eng & Contr 44:152 Ag 25 '15

Sewer design

Circular sewers versus egg-shaped, catenary and horseshoe cross-sections. R. D. French. Eng Rec 72:222-3 Ag 21 '15

Comparing sewer sections. B. Brooks; R. S. Beard. 29 diag Eng Rec 72:608-10 N 13 '15

Sewer design—Continued

- Design features of new sewerage works at Edmonton, Alberta. *diags plans Eng & Contr* 43:400-1 My 5 '15
- Design of regulators and storm water overflows for sewers for Cincinnati. E. J. Miner. *diags Eng & Contr* 42:156-7 Ag 12 '14
- Design of the sewerage system for the Panama-Pacific international exposition. W. C. Willard. *diags plan Eng & Contr* 42:434-40 N 4 '14
- Graphic method of determining runoff in storm sewers; discussion. *Eng N* 72:1322-5 D 31 '14
- Graphic method of determining runoff to sewers. C. H. Nordell; O. Hufeland. *Eng N* 73:893-4 Ap 8 '15
- New sewer inlets at St. Louis. S. Chivvis. *il diags Eng N* 74:652-3 S 8 '15
- Storm water inlets; information concerning dimensions and construction of inlet openings, inlets and catch basins in several hundred cities. *diags Munic J* 38:690-4 My 20 '15
- Sewer explosions**
- Apparatus for testing sewer atmosphere for explosive gases. H. J. Kellogg. *diag Eng & Contr* 42:273 S 16 '14
- Following explosion, Boston sewer tests show no gasoline. *Eng Rec* 71:457-8 Ap 10 '15
- Inflammable wastes in sewers. N. S. Sprague. *diags Munic Eng* 47:336-43 N '14; Same. *Eng & Contr* 42:476-8 N 18 '14; Excerpt. *Eng Rec* 70:442-3 O 17 '14
- Quantity of gasoline necessary to produce explosive mixtures in sewers. G. A. Burrell and H. T. Boyd. *diags J Ind & Eng Chem* 7:750-4 S '15; Abstract. *Eng N* 74:955 N 11 '15
- Sewer explosion at East Boston pumping station. *Munic Eng* 48:45-6 Ja '15
- Valid reasons for plumbing ordinances and plumbing inspection. T. J. Claffy. *Dom Eng* 73:235-7 N 20 '15
- Sewer gas**
- Sewer gas and its relation to public health; further discussion. A. R. McGonegal; A. Bateman. *Metal Work* 82:831-2 D 25 '14
- Valid reasons for plumbing ordinances and plumbing inspection. T. J. Claffy. *Dom Eng* 73:235-7 N 20 '15
- Sewer pipes**
- Cast iron pipe vs. vitrified stone-ware pipe for house sewers. W. R. Marshall. *il Dom Eng* 71:310 Je 12 '15
- Constructing an outfall sewer at Canton, Ohio. *il Eng N* 74:264-5 Ag 5 '15
- Load tests of concrete pipe in Savannah. E. R. Conant. *il Eng N* 74:556-7 S 16 '15
- Manufacture of concrete sewer pipe. *il Metal Work* 82:833-4 D 25 '14
- Manufacturing and laying reinforced concrete sewer pipe at Philadelphia. *il Eng & Contr* 43:245-7 Mr 17 '15
- Tests of circular and egg-shaped reinforced concrete sewer pipes. A. T. Goldbeck. *il diags Eng & Contr* 43:307-9 Ap 7 '15; Same (Reinforced-concrete sewer pipe tested for stiffness and impermeability) *Eng Rec* 71:711-12 Ja 5 '15; Same, with table. *Concrete Cem* 6:232-5 My '15
- Sewerage**
- Adapted machinery and construction methods employed on new Western avenue sewer, Chicago—time studies. S. E. Bates. *il diag Eng & Contr* 44:283-5 O 13 '15
- Albany's sewage treatment plant; sixteen Imhoff tanks and eight sludge beds. *il diags Munic J* 38:837-40 Je 17 '15
- Beargrass Creek storm-water channel at Louisville, Ky. J. H. Kimball. *il diag plan Eng N* 72:1256-60 D 24 '14
- Beat scheduled time five months in building huge De la Brea sewer, Los Angeles. *il Eng Rec* 72:130-2 Jl 31 '15
- Collapse form for sewers. *diags Eng N* 73:494 Mr 11 '15
- Collection and disposal of sewage at seaside resorts. M. A. Pugh. *il diags Eng & Contr* 43:176-9 F 24 '15
- Collection and treatment of sewage in Philadelphia. *Eng & Contr* 42:205-7 Ag 26 '14
- Construction of a 6-ft. segmental-block sewer. B. Wilk. *il Eng N* 73:838-9 Ap 29 '15
- Construction of the Metcalf ave. sewer, borough of the Bronx, New York city. G. L. Christian. *il diags Eng N* 72:1164-7 D 10 '14
- Contract plans for sewer work at Columbus, Ohio. *Eng N* 74:1034-5 N 25 '15
- Design and construction of the Market street flood channel, Burlington, Ia. C. T. Bowen. *Eng & Contr* 43:129-30 F 10 '15
- Design, construction and cost of new sanitary sewer system at Carrollton, Ill. M. C. Poulsen. *il Eng & Contr* 43:507-8 Je 9 '15
- Design, construction and cost of new sanitary sewerage system at Alton, Ill. J. E. Schwaab. *Eng & Contr* 43:137-8 F 10 '15
- Design, construction and operation of Lethbridge, Alberta, sewage treatment works. *plan Eng & Contr* 43:401-3 My 5 '15
- Diagram for computing rock in sewer trenches. C. A. Bryan. *Eng N* 73:1081-2 Je 8 '15
- Excavating and backfilling sewer trenches by machine. *Eng Rec* 71:20-1 Ja 2 '15
- Fall River mills will benefit by \$3,000,000 water and sewerage project. *diag Eng Rec* 72:501-3 O 23 '15
- Making over a storm sewer at Lincoln, Neb. G. W. Bates. *il diag Eng N* 73:710-11 Ap 15 '15
- Method and cost of constructing an inverted sewer siphon of 12 in. cast iron pipe, encased in concrete, beneath small stream at Carlisle, Pa. C. A. Bryan. *diag Eng & Contr* 42:151-3 Ag 12 '14
- Method and cost of making a relocation survey of underground pipe lines. O. E. Carr. *plans Eng & Contr* 42:153-5 Ag 12 '14; Same cond. (Underground survey of Cincinnati). *Eng Rec* 71:38-40 Ja 9 '15
- Method and cost of making house connections to the New Orleans sewerage system. *Eng & Contr* 42:203-4 Ag 26 '14
- Milwaukee sewerage problem and the sewage treatment testing station. T. C. Hatton. *Eng & Contr* 42:367-9 O 14 '14
- New sewerage system of Cairo, Egypt. *diags Eng N* 74:545 S 16 '15
- New water-conservation scheme at Fall River, Mass. *diag Eng N* 74:760-1 O 14 '13
- 90-in. circular gate for a 120-ft. head. *il diags Eng N* 73:865 My 6 '15
- Philadelphia sewage treatment report. *Munic J* 38:840-2 Je 17 '15
- Philadelphia's sewerage report; editorial comment. *Munic J* 39:257-9 Ag 19 '15
- Proposed method of enclosing a stream in reinforced concrete conduit through Mansfield, Ohio. C. L. Bushey. *diag Eng & Contr* 43:126-7 F 10 '15
- Recommended procedure in disposal of wastes from the stockyards and Packingtown in Chicago. *Eng & Contr* 43:38-9 Ja 13 '15
- Reinforced-concrete sewer viaduct. E. D. Gilman. *il diag Eng N* 73:1191 Je 17 '15
- San Francisco's sewerage system. A. J. Cleary. *il diags maps Eng N* 73:305-10 F 13 '15
- Scope of engineering reports and plans for sewerage and sewage disposal works in Saskatchewan. *Eng & Contr* 42:155-6 Ag 12 '14
- 7000-foot pipe line floated to place in Lake Ontario in long sections. N. A. Brown. *il diags Eng Rec* 72:20-1 Jl 3 '15
- Sewage collection and pumping systems on low-lying Park Point near Duluth, Minn. *diags Eng & Contr* 43:309-10 Ap 7 '15
- Sewage disposal in Chilliwack, B. C. D. P. Dunn. *Munic J* 38:837-9 My 20 '15
- Sewer connections common trouble source. *Metal Work* 83:874 Je 18 '15
- Sewer construction at Ludington. G. W. Clark. *il Munic J* 38:62-4 Ja 21 '15
- Sewer construction, 1915; tabulation. *Munic Eng* 48:264-5 Ap '15
- Sewer street at Wichita. B. C. Wells. *Munic J* 38:357 Mr 18 '15
- Sewer tunnel construction in Alton, Ill. J. E. Schwaab. *Munic Eng* 48:43-4 Ja '15
- Sewerage in Salt Lake. *il Munic J* 38:347-8 Mr 18 '15
- Sheeting and pumping methods for Chicago sewer trench. *il Eng Rec* 71:245 F 20 '15
- Street flooding prevented by wide storm-sewer intakes. *il Eng Rec* 72:663 N 27 '15

Sewerage—Continued

Taking care of drainage at street intersections. C. V. Mann. *Il plan Eng N 74:221 J 29 '15*
 Water supply and drainage in Argentina. A. Dale. *Il Metal Work 84:103-6 J 23 '15*
See also Drain tile; Drainage, House; Plumbing; Sanitary engineering; Sewage; Sewage disposal; Sewage pumping; Sewer air; Sewer cleaning; Sewer design; Sewer explosions; Sewer gas; Sewer pipes; Sewers, Concrete; Trade waste; also San Francisco—Panama-Pacific International exposition—Sewerage

Catch basins

Comments on catch basins. Munic J 38:348-9 Mr 18 '15
 Direct connected inlet vs. catch basin. A. F. Unckrich. Munic J 38:694 My 20 '15

Cost

Final report on Philadelphia's plan of sewage treatment. Eng Rec 71:638 My 22 '15
 Handy method of estimating the cost of constructing pipe sewers. W. G. Kirchoffer. Eng & Contr 44:285-6 O 13 '15
 Installing a half-mile sewer system; Gilbert, Minn. A. Cohn. Eng N 74:364-5 Ag 19 '15
 Sewer work by day labor at Carlisle, Pa.; methods employed, hours of labor and itemized costs. J. C. Hiteshaw. *Il Munic J 38:506-8 Ap 15 '15*
 Sewerage developments at Philadelphia, Pa. Eng & Contr 43:sup20 My 26 '15

Damages from floods, etc.

Performance of the New Orleans water, sewerage and drainage systems during the recent hurricane. G. G. Earl. Eng & Contr 44:387-9 N 17 '15

Design**See Sewer design****Finance**

Privately financed system of sewers for the borough of Troy, Pennsylvania. H. W. Taylor. Eng Rec 71:79-80 Ja 16 '15

Laws and regulations

Features of the Ontario statutes and their administration affecting water supplies and sewerage systems. F. A. Dallyn. Am Water Works Assn J 2:344-50 Je '15
 Maintenance of sewers and disposal works demands treatment of injurious trade wastes. W. L. Stevenson. Eng Rec 71:256-60 F 27 '15
 Sewage disposal in Maryland; advantages of joint sewerage and sewage treatment systems for small towns. Munic J 38:842-4 Je 17 '15

Maintenance and repair

Cement gun for relining old brick and ashlar sewers. L. Chivvis. *Il Eng N 74:939-40 N 11 '15*
 Reinforcing a vitrified-pipe sewer at Passaic, N. J. S. J. Naughton. Eng N 73:096 Ap 8 '15
 Removal of bottle neck augments flow in sewer. *Il Eng Rec 71:486 Ap 17 '15*
 Repairing a cracked sewer. L. B. Lawrence. *Il diag Munic J 38:217-18 F 13 '15*
 Water and sewer maintenance in New Orleans. *Il Munic J 39:854-6 S 2 '15*

Run-off**See Sewer design****Statistics**

Report of committee on sewerage statistics. Boston Soc C E J 1:263-76 My '14
 Sewerage statistics for 1914. Munic J 38:349+, 510 Mr 18, Ap 15 '15

Sewers, Concrete

Beat scheduled time five months in building huge De la Brea sewer, Los Angeles. *Il Eng Rec 72:180-2 J 1 '15*
 Building a sewer tunnel of special concrete blocks reinforced. A. J. Latornell. *diags Eng N 74:127-8 J 15 '15*
 Concrete lining improves sewage-laden creek. J. D. Justin. *Il Eng Rec 72:101-2 J 1 '15*

Constructing Passaic valley sewer. *Il plan diag Munic J 38:213-17 F 13 '15*
 Construction features on the Passaic valley sewer. *Il diags Munic J 38:59-62 Ja 21 '15*
 Construction of the Metcalf ave. sewer, borough of the Bronx, New York city. G. L. Christian. *Il diags Eng N 72:1164-7 D 10 '14*
 Construction plant and methods employed in building a system of concrete block tunnel sewers at Edmonton, Alberta. *diags Eng & Contr 43:361-3 Ap 21 '15*
 Construction plant and methods employed in the North shore intercepting sewer, sanitary district of Chicago. M. A. Berns. *Il Eng & Contr 42:568-9 D 16 '14*
 Design and construction features of reinforced concrete sewer siphons under New York subways. T. L. Wilson. Eng & Contr 43:128-9 F 10 '15
 Design and construction of the Arroyo de la Brea storm sewer system, Los Angeles, Cal. *Il Eng & Contr 44:5-6 J 7 '15*
 Effect of sewage and sewage gases on concrete. Concrete Cem 7:31-2 J 15
 Improvement of Pogue's Run, Indianapolis, Indiana. *Il plans Munic Eng 48:236-9 Ap '15*
 Indianapolis builds million dollar storm-water drain under railroad yards. *Il Eng Rec 71:560-1 My 1 '15*
 Laying 48-in. concrete block sewer. Eng N 74:703-4 O 7 '15
 Method and cost of constructing 42 and 48-in. concrete sewers at San Antonio, Tex. Eng & Contr 44:258-5 S 29 '15
 Methods and costs in constructing, 42-in. and 48-in. monolithic concrete sewer. E. W. Robinson. *Il diags Concrete Cem 7:93-6 S '15*
 New methods of pneumatic tunneling aid safe and rapid completion of Passaic valley sewer contract. *Il diags Eng Rec 71:130-3 Ja 30 '15*
 Reinforced-concrete work well handled on Chicago sewer. *Il Eng Rec 72:612 N 13 '15*
 Sewer form; telescopic type for monolithic construction. *Il Munic J 39:450-1 S 16 '15*; Eng & Contr 44:214 S 15 '15

Sewing cabinets

Working details of a sewing cabinet. R. F. Windoes. *diags Bldg Age 37:46-7 Ap '15*

Sewing machines

Dumore sewing-machine motor. *Il Elec R & W Elec'n 67:633 O 2 '15*
 Electric drive for Wilcox & Gibbs sewing machine. *Il Elec R & W Elec'n 67:992 N 27 '15*; Elec W 66:1220 N 27 '15
 Hamilton-Reach sewing-machine motor. *Il Elec R & W Elec'n 67:773 O 23 '15*
 How sewing machine parts are molded and cast. H. C. Estep. *Il Foundry 43:345-51 S '15*
 Needle threading device. *diags Textile World 50:79-80 O '15*
 Seventy years of inventions. *Il Sci Am 112:511-12 Je 5 '15*
 Westinghouse factory sewing-machine motor. *Il Elec R & W Elec'n 67:856 N 6 '15*; Elec W 66:1048 N 6 '15

Sex in plants

Altering the sex of date palm seedlings. Sci Am 112:127 F 6 '15

Shade trees. See Trees**Shades and shadows****See also Perspective****Shaft gates**

Automatic safety lock and indicator for shaft gates. *diag Eng & Min J 99:1118-19 Je 26 '15*

Shaft lining

Ferro-concrete shaft linings. M. Gillieaux. *diags Colliery 35:609-11 Je '15*
 Modifications in shaft design influenced by concrete as a lining material. Eng & Contr 43:370 Ap 28 '15

Shaft sinking

Bell-wire arrangement in sinking. C. P. Bernard. *diag Eng & Min J 99:323 F 13 '15*
 Cementation process for sinking shafts. S. F. Walker. Eng & Min J 100:58-9 J 10 '15
 City tunnel of the Catskill aqueduct. W. E. Spear. *Il diags Eng N 73:98-103 Ja 21 '15*
 Cost of sinking 900-ft. shaft. H. A. Linke. *diags Eng & Min J 100:845-7 N 20 '15*

Shaft sinking—Continued

Method and cost of grouting a water bearing fissure and seamy rock in sinking a mine shaft. J. R. Reigart. *diags Eng & Contr* 44: 353-5 N 3 '15

Methods and cost of shaft sinking at the Astoria tunnel, New York city. J. V. Davies. *Eng & Contr* 44:200 S 15 '15

Methods and plant employed in sinking a vertical shaft at the Palma mine, Bessemer, Mich. F. Blackwell. *diags Eng & Contr* 42: 251-3 S 9 '14

Methods and some costs of mine shaft sinking in very tough, hard rock. W. Y. Westervelt. *Eng & Contr* 43:226-7 Mr 10 '15

Shaft-sinking with jackhammers. L. A. Palmer. *diag Eng & Min J* 100:592-9 O 9 '15

Shaft timbering and headgear on the Mesabi range. *diags Eng & Min J* 99:1119 Je 26 '15

Sinking by the drop-shaft method. C. Pilkington and P. L. Wood. *diags Colliery* 35:303-3 Ja 15

Sinking new "C" shaft at the East Norrie mine, Ironwood, Mich. B. G. Best. *plan Eng & Min J* 100:437-8 S 11 '15

Sinking shoes for soft ground. *diags Eng & Min J* 100:104-5 Jl 17 '15

Unexcavated core is left in center in sinking circular subway shaft. *il diags Eng Rec* 71: 522-3 Ap 24 '15

Unique method of sinking shafts in soft ground. L. T. Emory. *il Eng N* 73:397-8 F 25 '15; Same cond. *Eng & Min J* 99:945-6 My 29 '15

See also Drilling and boring (earth and rocks); Mining engineering

Shafthouses

Shaft-rockhouse practice in the copper country. L. H. Goodwin. *il diags Eng & Min J* 99: 1061-6, 1107-10 Je 19-26 '15

Shafting

Angle of torsion. B. D. Pinkney. *diags Mach* 22:58 S '15

Angle of torsion. W. B. Gilbert. *diag Mach* 21: 331 Je 15

Charts for determining sizes of transmission shafts. J. Y. Dahlstrand. *Mach* 22:129-30 O 15

Friction load of shaft bearings. *Elec W* 66: 809-11 O 9 '15

Guarding of shafting. *il Ry R* 56:220-1 F 13 '15

Preventing losses in factory power plants. S. J. El. White. *Iron Age* 95:848-9 Ap 15 '15

See also Belting

Shafts

Centering shafts. C. E. Hendricks. *diag Mach* 21:1014 Ag '15

Copper shock absorbing shaft. *diag Mach* 22: 70 S '15

Distance between shaft bearings. B. D. Pinkney. *Mach* 21:715-16 My '15

Improved form of flexible shaft. *diag Iron Age* 94:1287 D 3 '14

Method of making a shrink fit. W. Swaren. *il Power* 40:816 D 8 '14

Rothenschuer compression shaft coupling. *il Power* 42:620 N 2 '15

Sleeving shrunk on worn armature shafts—rethreading pinion-end threads. *diag Elec Ry J* 45:720-1 Ap 10 '15

Torsional oscillations of engine shaft; abstract. O. Mies. *diag Am Soc M E J* 37:406-7 Jl '15

See also Camshafts; Crankshafts; Hoisting machinery; Mine shafts; Power transmission; Shaft gates; Shaft sinking; Shafting

Shafts, Mine. See Mine shafts

Shale

Tests of frictional resistance of concrete on shale. El. L. Lester. *il diag Eng N* 74:156-8 Jl 22 '15

Shanal railway

Railways in China. *il Engineer* 119:347-8 Ap 9 '15

Sharks

Natural history of the whale shark. El. W. Gudger. *il diags Sci Am S* 80:230-3, 246-7 O 9-16 '15

Sharpening

Automatic band saw sharpener. *il Iron Tr R* 56:666 Ap 1 '15

Electric edger for safety razors. *il diag Elec W* 66:711-12 S 25 '15; *Elec R & W Elec'n* 67:633-4 O 2 '15

Gear generator tool grinding machine. *il Iron Age* 95:1230 Je 3 '15

Imperial drill sharpener. *diag Eng & Min J* 99:414 F 27 '15

Progress in machine shop methods. El. R. Norris. *Iron Tr R* 57:749 O 14 '15; *Excerpt* (Resharpening of files) *Iron Age* 96:1175 N 18 '15

Sullivan drill sharpener. *il Eng & Min J* 99: 949-50 My 29 '15; *Eng & Contr* 43:475-6 My 26 '15; *Iron Age* 95:1287 Je 10 '15

Wonder drill sharpener. *il Eng & Min J* 100: 191 Jl 31 '15

Shears

Short rivet shear. El. T. Spidy. *diags Ry Age* (Mech ed) 88:642 D '14

Sheep

Sheep raising in Oklahoma. G. L. Browning. *il Textile World* 49:591-3 S '15

Sheep dips

Sheep dips in Uruguay. H. L. Spahr. *Textile World* 48:594; 49:656-7 Mr, S '15

Sheet metal

Sheet metal for building construction. *Metal Work* 82:737-3 D 4 '14

Sheet metal prevents spread of large fire. S. H. Bunnell. *il Metal Work* 83:110-12 Ja 8 '15

See also Tin plate

Sheet metal contractors

Making the most of your business. P. F. Brandstedt. *Metal Work* 83:458-9 Mr 19 '15

Sheet metal contractor's overhead expense. *Metal Work* 83:423-6 Mr 19 '15

Sheet metal contractors, National association of. See National association of sheet metal contractors

Sheet metal contractors associations

Chicago sheet metal contractors. *Metal Work* 83:457 Mr 19 '15

Chicago sheet metal contractors meeting, Nov. 2. *Metal Work* 84:627-8 N 12 '15

Illinois sheet metal contractors meet. *Metal Work* 83:740-3 My 21 '15

National association of sheet metal contractors' 11th annual convention. *Metal Work* 83: 890-8 Je 18 '15

Ohio sheet metal contractors' convention. *Metal Work* 83:858-61 Je 11 '15

Securing and keeping new members. G. El. Kohlmeier. *Metal Work* 83:384 Mr 13 '15

See also Michigan state association of sheet metal contractors

Sheet metal machinery. See Metal working machinery

Sheet metal trade

American sheet metal products in Salvador. G. Harris. *il Metal Work* 83:800-1 Je 4 '15

Buying suggestions made by successful men. *Metal Work* 83:423-6 Mr 19 '15

Commercial side of the sheet metal business. P. L. Biersach. *Metal Work* 83:906-7 Je 18 '15

Co-operation in the sheet metal trade. F. B. Hiller. *Metal Work* 83:164-5 Ja 22 '15

Cost system of Michigan sheet metal shop. *Metal Work* 83:802-4 Je 4 '15

Metal branch of National hardware association annual meeting, May 21-22. *Metal Work* 83:784-5 My 28 '15

Sheet and tin-plate trades in 1914. B. El. V. Luty. *Iron Age* 95:10-11 Ja 7 '15

Way to expand the sheet metal trade. F. K. Chew. *Metal Work* 83:786-7 My 28 '15

Sheet metal work

Automobile sheet metal work in western city. *il Metal Work* 84:152-3 Jl 30 '15

Blanks for rectangular and elliptical shells. F. J. W. Sparkuhl. *diags Mach* 21:687-8 Ap 9 '15

Dies for drawing flanged shells. El. P. Davis. *diags Mach* 21:532-4 Mr '15

Establishing number of operations for drawing cylindrical shells. F. J. W. Sparkuhl. *Mach* 21:729-32 My '15

Ford methods and the Ford shops. F. L. Faurote. *il Eng M* 48:859-76 Mr '15

Sheet metal work—Continued

- Formulas for blank diameters of drawn shells. F. J. W. Sparkuhl. *diags Mach* 21:373-6 Ja '15
- Making lamps for Christmas presents. W. Neubecker. *il diags Metal Work* 82:770-1 D 11 '14
- Making rack for storage of sheet metal *diags Metal Work* 83:313-14 F 26 '15
- Press tools for making a roller bearing cage. *il diags Mach* 21:547-9 Mr '15
- Rectangular drawing and trimming. J. M. Stabel. *diags Mach* 23:44-7 S '15
- Safety in sheet metal operations. *il Am Ind* 15:supl-4 Ap '15
- Sheet metal window shop in the Southwest. *il plan Metal Work* 83:96-7+ Ja 8 '15
- Tools for making lamp wick-tubes and burner caps. R. Toeplitz. *il diags Mach* 21:1002-3 Ag '15
- Wilzin process for flat-ware manufacture. *il Mach* 22:76-7, 80 S '15
- Wilzin process of flatware manufacture. *il Metal Ind n s* 13:374-7 S '15
- See also Brass; Cartridge cases; Copper; Dies; Punching machinery; Rolling mills; Shells; Tanks
- Accounting**
- Accounting system for roofing business. E. B. Bourlier. *Metal Work* 83:39-42 Ja 1 '15
- Cost system of Denver sheet metal shop. *il Metal Work* 84:175-6+ Ag 6 '15
- Exhibitions**
- Sheet metal and plumbing work exhibited. *il Metal Work* 84:546-7 O 20 '15
- Pattern making**
- Ball joint for blow-pipe connection. *diags Metal Work* 83:294-5 F 19 '15
- Circle to ellipse offset transition piece. *diags Metal Work* 84:616-17+ N 12 '15
- Constructing emery wheel exhaust heads. *diags Metal Work* 82:787-9 D 18 '14
- Cyclone or centrifugal separator designs. *diags Metal Work* 84:50-1 JI 9 '15
- Designing roof flanges for stove pipes. *diags Metal Work* 84:403+ S 24 '15
- Developing pattern for roof flange and hood. *diags Metal Work* 84:283 Ag 27 '15
- Developing pattern for taper joint. *diags Metal Work* 84:653 N 19 '15
- Developing patterns for water pipe lateral. *diags Metal Work* 84:492-3 O 15 '15
- Developing roof flange and plate pattern. *diags Metal Work* 84:335 S 10 '15
- Faucet boss problem solved by triangulation. *diags Metal Work* 84:245-6 Ag 20 '15
- Four-prong fork for pipe of blower system. *diags Metal Work* 83:811-12+ Je 4 '15
- Making patterns for cone hopper and spout. *diags Metal Work* 84:112-13 JI 23 '15
- Pattern for angular boot of varying section. *diags Metal Work* 84:456-7 O 8 '15
- Pattern for construction of mason's chute. *diags Metal Work* 83:921-2 Je 25 '15
- Pattern for irregular shaped copper funnel. *diags Metal Work* 84:6+ JI 2 '15
- Pattern for offset in ventilation pipe. *Metal Work* 83:571-3+ Ap 16 '15
- Pattern for spiral strips in dust separator. *diags Metal Work* 84:369-70, 545+ S 17, O 29 '15
- Pattern for taper joint by triangulation. *diags Metal Work* 84:527 O 22 '15
- Patterns for compound curve elbow of copper. *diags Metal Work* 83:417-19 Mr 19 '15
- Patterns for intersecting conical spouts. *diags Metal Work* 83:827-9 Ap 30 '15
- Patterns for offset Y from circular pipe. *diags Metal Work* 84:67-9 JI 16 '15
- Patterns for sheet metal transforming elbow. *diags Metal Work* 83:357-8 Mr 5 '15
- Simplified pattern for a Y fitting. *diags Metal Work* 83:253 F 12 '15
- Simplified pattern for metal center boot. W. Neubecker. *diags Metal Work* 84:669+ N 26 '15
- Various constructions of charcoal fire pots. *diags Metal Work* 84:649-51 N 19 '15
- Sheet metal work, Architectural**
- Constructing galvanized iron silo roof. *diags Metal Work* 83:534-6 Ap 9 '15
- Home instruction for sheet metal workers. W. Neubecker. *Metal Work* 81:97, 166-7, 332-3, 339-90, 456+ 524-5, 651-2, 719-19, 82:457+ 815-16, 867-8; 83:498-9, 665-7, 810+; 84:171-3, 297-3, 423-4, 581-2, 702-4+ Ja 9 '15, F 27, Mr 13, 27, Ap 10, My 22-29, O 2, N 6, 20 '14, Ap 2, My 7, Je 4, Ag 6, S 8, O 1, N 5, D 3 '15
- Laying galvanized corrugated roofing sheets. E. Stern. *diags Metal Work* 83:844-5 Je 11 '15
- Method of laying standing seam roofing. *Metal Work* 83:497+ Ap 2 '15
- Sheet metal for St. Ignatius church, San Francisco. W. A. Douglas. *il Metal Work* 83:162-3+ Ja 22 '15
- Sheet metal gutter construction problems. *diags Metal Work* 83:700-1 My 14 '15
- Sheet metal in farm buildings. *diags plan Metal Work* 83:181-2+ Ja 29 '15
- See also Window frames
- Sheet metal workers**
- Training apprentice sheet metal workers. O. E. Cluss. *Metal Work* 83:259-60 F 12 '15
- Sheet mills.** See Rolling mills
- Sheet piling**
- Concrete anchor piles for steel sheeting. *diags Eng N* 73:1220-1 D 17 '14
- Pulling steel sheetpiles with an inverted steam hammer. *il Eng N* 73:218-19 F 4 '15
- Sheeting.** See Sheet piling
- Shellac**
- Determination of moisture in shellac. *J Ind & Eng Chem* 7:633 JI '15
- Shells**
- Blanks for rectangular and elliptical shells. F. J. W. Sparkuhl. *diags Mach* 21:637-8 Ap '15
- Dies for drawing flanged shells. E. P. Davis. *diags Mach* 21:532-4 Mr '15
- Establishing number of operations for drawing cylindrical shells. F. J. W. Sparkuhl. *Mach* 21:729-33 My '15
- Formulas for blank diameters of drawn shells. F. J. W. Sparkuhl. *diags Mach* 31:373-6 Ja '15
- Machine for rough turning shell blanks. *il Iron Age* 95:1402 Je 24 '15
- Shells (projectiles)**
- Cleveland shell banding and nosing press. *il diags Mach* 22:253-4 N '15
- Dial feed attachment for large shells. *il Iron Age* 96:1223 N 25 '15
- Hydraulic presses versus power presses for the manufacture of cartridges and shells; abstract. W. Rodger. *Am Soc M E J* 37: 612-13 O '15
- Machine for cutting off copper bands. *il diags Iron Age* 96:243 JI 29 '15; *Mach* 21:1020 Ag '15
- Machinery for the production of projectiles. *il Engineer* 120:116-17, 278, 338-9 JI 30, S 17, O 8 '15
- Machining high-explosive shells. C. A. Tupper. *diags Iron Age* 96:806-9 O 7 '15
- Machining projectile shells. *il diags Iron Age* 96:1099-1100 N 4 '15
- Metals for shells. *Metal Ind n s* 13:461 N '15
- Shell-case turning lathe with pneumatically-operated clutch. *il Sci Am* 113:472 N 27 '15
- Shell turning and manufacturing lathe. *il Iron Age* 96:299 Ag 5 '15
- Shell with a base-cap that precludes premature explosion. *il Sci Am* 113:469+ N 27 '15
- Shell work engine lathes. *il Iron Age* 95:1394-5 Je 24 '15
- Shells for destroying airships. *il Sci Am* 112:161 F 13 '15
- Shells from European battlefields. *il Iron Age* 96:186-7 JI 22 '15
- Shells of the calibers now in service. C. A. Tupper. *Iron Age* 96:1045-8 N 4 '15
- Single-purpose lathe for shell work. *il Iron Age* 96:810-11 O 7 '15
- 6-in. rotary cutting off machine. *il Iron Age* 96:126-7 JI 15 '15
- 32-in. lathe for large shell work. *il Iron Age* 96:84 JI 8 '15
- Three lathes designed for shell work. *il Iron Tr R* 67:396-7 N 4 '15
- See also Projectiles; Shrapnel shells

- Shells, Unexploded**
 Detecting buried shells with induction balance. Sci Am 113:425-4 N 13 '15
- Sherardizing.** See Galvanizing
- Shingle mills**
 Electrically driven shingle mill. Il Elec R & W Elec'n 66:1123-2 Je 12 '15
- Ship plates.** See Plates, Iron and steel
- Ship propulsion**
 Boat design that eliminates bow waves and wake. C. Hering. Il Sci Am 113:325 O 9 '15;
 Discussion (Waveless boat). 113:447 N 20 '15
 Diesel engine propelled ship, Pacific; abstract. W. Kaemmerer. Am Soc M E J 37:601-2 O '15
 Economy. F. H. Sadler. diags Int Marine Eng 20:459-63 O '15
 New United States revenue cutters. diags plans Int Marine Eng 20:4-7 Ja '15
 Oil and suction producer gas engines for ship propulsion; abstract. Am Soc M E J 37:602 J '15
 Reduction gears on the Pennsylvania. Il diags Int Marine Eng 20:339-40 Ag '15
 Relative advantages of turbines, Diesel engine and reciprocating steam engine drive. Int Marine Eng 20:223 My '15; Same. Sci Am S 80:86 Ag 7 '15
 Submarine power plant. A. Hoar. Il Sibley J 30:59-63 N '15
 Submarine propulsion. P. H. Berggeen. Sibley J 30:71-2 N '15
See also Boilers, Marine; Diesel engines, Marine; Motor ships; Propellers; Ship resistance; Steam turbines, Marine; Steamboats
- Ship propulsion, Electric**
 Applicability of electrical propulsion to battleships, together with the experience gained with it on the Jupiter; abstract. S. M. Robinson. Int Marine Eng 20:19-21 Ja '15
 Application of electricity to propulsion: fifty-foot motor boat equipped with electric drive for experimental purposes. W. T. Donnelly. Il diags Int Marine Eng 20:204-8, 264-6 My-Je '15
 Electric drive in the navy. Iron Age 94:1517 D 31 '14
 Electric propulsion. Int Marine Eng 20:239 Je '15
 Electric ship propulsion. W. L. R. Emmet. Power 41:657-8 My 11 '15; Abstract. Elec R & W Elec'n 66:826 My 1 '15; Abstract. Elec W 66:1139-40 My 1 '15
 Electrical propulsion on battleships. Int Marine Eng 20:3 Ja '15
 Modern submarines in war and peace. S. Lake. Il Int Marine Eng 20:502-3 N '15
 Performance of the electrically propelled collier Jupiter. S. M. Robinson. Eng N 73:393 F 25 '15
 Refinements of turbo-electric propulsion. Elec R & W Elec'n 66:934 My 22 '15
 Swedish ship with turbo-electric propulsion. Am Soc M E J 37:609 O '15
 Turbine-electric propulsion for battleships. Eng Rec 71:607 My 15 '15
See also Electricity on ships
- Ship purchase bill**
 Government ship purchase bill. T. E. Burton. Sci Am 112:197-4 F 27 '15
 Government ship purchase bill; a defense of the administration's policy. J. W. Alexander. Sci Am 112:177-4 F 20 '15
 On the edge of the maelstrom of war. Sci Am 112:192 F 27 '15
 Shipping bill fallacy. Sci Am 112:94 Ja 30 '15
- Ship resistance**
 Calculations for ships' forms; light thrown by model experiments upon resistance, propulsion and rolling of ships. D. W. Taylor. Int Marine Eng 20:448-5 O '15 (to be cont)
 Expansion or contraction of dimensions and the effect upon resistance. H. C. Sadler. diags Int Marine Eng 20:11-14 Ja '15
 Experimental methods of the German government model tank, "Berlin." Int Marine Eng 20:366, 417 Ag-S '15
 Suction between passing ships. S. A. Reeve. diags Sci Am S 79:31-2 Ja 9 '15
- Ship yards.** See Shipyards
- Shipbuilding**
 Conversion of cargo vessels into bulk oil carriers. K. K. Ruprecht. Int Marine Eng 20:185-6, 212-16, 258-9, 309-11, 340-3, 404-6 Ap-S '15
 Davits and the new requirements. H. W. Broady. Il diags Int Marine Eng 20:260-4, 305-9, 355-8 Je-Ag '15
 Failure of British steel ship plates. W. J. B. Wilson. Il Iron Age 96:610-12 Mr 18 '15;
 Abstract. Am Soc M E J 37:57-8 Ja '15
 Future bright for eastern shipyards. Iron Age 95:404-5 F 18 '15
 Higher battleship bids. Iron Age 96:1228-9 N 25 '15
 Introduction of a modern method in shipbuilding. W. Brown. diags Int Marine Eng 20:163-5 Ap '15
 Lloyd's register shipbuilding returns. Engineer 120:86 J1 23 '15
 Merchant shipbuilding in 1914 and the outlook. Iron Age 95:361 F 11 '15
 Output of Japanese shipyards in 1914. Il Int Marine Eng 20:170 Ap '15
 Shipbuilding in navy yards. Int Marine Eng 20:234-5 My '15
 Shipbuilding in 1914. Engineer 119:135-6 F 5 '15
 Shipbuilding in the United Kingdom in 1914. diags Int Marine Eng 20:58 F '15
 Shipbuilding in the United States in 1914. Int Marine Eng 20:34-5 Ja '15
 Small production of merchant ships. Iron Age 95:849 Ap 15 '15
 Surprising failure of steel ship plates. Int Marine Eng 20:50-1 F '15
 Technical aspects of shipbuilding contracts. H. Bocler. Int Marine Eng 20:465-6 O '15
 Unusual conversion; racing schooner Rainbow turned into a trading schooner. Il diags Engineer 119:177-8 F 19 '15
 World's shipbuilding. Sci Am S 80:32 J1 10 '15
See also Car ferries; Launching; Marine engines; Motor ships; Naval architecture; Propellers; Ship propulsion; Ship resistance; Ships—Repair; Shipyards; Steamboats; Submarine boats; Tank ships; Towboats; Warships; Yachts
- Study and teaching**
 Questions and answers for marine engineers. See monthly numbers of International marine engineering
- Shipment of goods**
 Prompt shipment—what does it mean in business contracts. E. J. Buckley. Elec R & W Elec'n 66:530 Mr 20 '15
 Recording export shipments; how the detail instructions of different foreign buyers are preserved. H. A. Russell. Iron Age 96:930 O 21 '15
 Retailing steel mill products. Il plan Iron Tr R 56:65-71 Ja 7 '15
 Shipping 2000 Ford cars a day. M. Braun. Il plan Automobile 33:646-9 O 7 '15
 Where the delivering agent falls down. D. C. Davis. Ry Age 58:966 My 7 '15
See also Packing for shipment
- Shipping**
 Review of the year 1914: merchant marine. Sci Am 112:6 Ja 2 '15
 Searching for contraband with X-rays. Il Sci Am 112:388 Ap 10 '15
See also Commerce; Freight handling; Ports; Seamen's bill; Shipbuilding; Shipment of goods; Ships; Steamboat lines; Steamboats; Terminals; Waterways
- Great Britain**
 British shipping tonnage. Sci Am S 79:360 Je 5 '15
 Lloyd's annual report. Int Marine Eng 19:580-1 D '14
 Lloyd's register of shipping. Engineer 119:225-6 Mr 5 '15
- United States**
 American overseas trade. R. D. Williams. Iron Tr R 56:17-20 Ja 7 '15
 Decline of our merchant marine. Sci Am 113:136 Ag 14 '15
 Fair field and no favor. Sci Am 112:284 Mr 27 '15

Shipping—United States—Continued

- Problem of our merchant marine. C: Deepsee. Sci Am 111:455 D 5 '14
 Profit in the Panama steamships. L. Nissen. Am Ind 15:31 Mr '15
 Sharp passage on merchant marine at the National foreign trade council. Iron Age 95:247-8 Ja 28 '15
 Special naval reserve and the merchant marine. H. L. Aldrich. Int Marine Eng 20:145 Ap '15
 Storage rule for exports. Iron Age 95:254 Ja 28 '15

See also Ship purchase bill

Shipping trusts

- Dissolution suits brought by government against shipping combines. Iron Tr R 56:358g-358h F 13 '15

Ships

- Classification of ships. A. R. Liddell. Int Marine Eng 20:441-2 O '15
 New ships needed for the Coast and geodetic survey. Int Marine Eng 20:2-3 Ja '15
 Speed control on dreadnought Pennsylvania. Il Int Marine Eng 20:200-1 My '15
 Typical ships. Il diag plan (supp) Engineer 117:366-70; 118:229-32, 359-62, 578-5 Ap 3, S 4, O 16, D 18 '14

See also Car ferries; Coaling vessels; Electricity on ships; Freight ships; Ice-breaking vessels; Launching; Light ships; Motor ships; Naval architecture; Navies; Navigation; Propellers; Refrigeration in transportation; Repair ships; Revenue cutters; Safety at sea; Sailing vessels; Salvage ships; Ship resistance; Shipbuilding; Shipping; Shipwrecks; Steamboats; Submarine boats; Tank ships; Torpedo boat destroyers; Torpedo boats; Towboats; Warships; Yachts

Lighting

- Lighting of ships. L. C. Porter. Il Gen Elec R 18:143-6 F '15; Same. Int Marine Eng 20:336-8 Ag '15

Models

- Naval engineering ship models. F. Van Vleck. Int Marine Eng 20:22 Ja '15

Repair

- How to avoid big repair bills. "Old Scotch." Int Marine Eng 20:267 Je '15
 Repairing the Gulfight. Il Sci Am 113:318 O 9 '15
 Torpedo damage to the oil tanker Gulfight. Il Int Marine Eng 20:620-1 N '15

Sanitation

- Steam disinfection for sewage on common carriers. diag Eng Rec 71:43 Ja 9 '15; Same (Sewage treatment on trains and boats). Eng M 48:917-18 Mr '15

Stability

- Eastland disaster and vessel stability. R. A. Towler. Eng N 74:616-17 S 9 '15
 Electric stabilizer for steamships. Elec R & W Elec'n 67:200-1 Ag 14 '15
 Electrically driven gyroscope in marine work. H. C. Ford. Il Am Inst E E Pro 33:873-87 Je '14; Same. Sci Am S 78:268-9, 284-5 O 24-31 '14; Same cond. Eng M 47:911-13 S '14; Discussion. Am Inst E E Pro 33:1800 D '14
 Safety of lake and coastwise passenger steamers. C. D. Irwin. Sci Am 113:271 S 25 '15
 Stability of vessels as affected by damage due to collision. W: Gutewood. Int Marine Eng 20:156-8 Ap '15
 Water-ballast tanks and the Eastland disaster. F. R. Harris. Eng N 74:467-8 S 2 '15

Ships, Iron and steel

- Shallow draft boat for the Yangtze Kiang. plans Int Marine Eng 20:490-2 N '15

Ships, Speed of

- Formula for estimating the speed of a boat. Int Marine Eng 20:360 Ag '15

Shipwrecks

- Repairs to lake freighter H. M. Hanna, Jr. Il Int Marine Eng 19:564-6 D '14

See also Collisions at sea; Salvage; also Eastland (steamship)

Shipyards

- Shipyard at Prince Rupert terminal. W: T. Donnelly. Il diag Int Marine Eng 20:120-2 Mr '15

Shock absorbers

- Absorber permits limited free motion. diag Automobile 33:802 O 28 '15
 Friction disks in new Hartford absorber. Il Automobile 31:1265 D 31 '14
 Jenney shock absorber. Il Automobile 33:522 S 16 '15
 New J. M. shock absorber. Il Automobile 32:994 Je 3 '15

Shoddy

- Shoddy in woolen fabrics. K. B. Lamb. Il Textile World 49:154-6 My '15

Shoe cloth

- English, Belgian and German shoe cloths. Textile World 48:388-9 Ja '15

Shoe factories

- Electricity in a Massachusetts shoe factory. T: D. Bond. Il Elec W 66:88-90 Jl 10 '15

Shoes

- Shoe-button attaching machine. Il diag Sci Am 112:410 My 1 '15

Shone ejectors. See Sewage ejectors

Shooting

- Whiplash crack and bullet sound waves. H. P. Maxim. Il Sci Am 113:231 S 11 '15

See also Range finding; Rifle ranges

Shooting, Military

- Accuracy of fire; the principal causes affecting the fire of big guns. H. J. Jones. Sci Am S 80:291 N 6 '15
 Indirect fire. El. Vallier. Eng M 50:454-5 D '15

Shop hospitals. See Hospitals, Factory

Shop management

- Best methods of dealing with men. H. E. Gamble. Ry Age (Mech ed) 89:61 F '15
 Conservation of material in the railroad repair shop. El. Cordeal. Eng M 48:827-32 Mr '15

Expert in the railroad repair shop. El. Cordeal. Eng M 49:351-8 Je '15

- Railroad locomotive repair shop organization. H: Gardner. Ry Age 59:597-9 O 15 '15

Shop management and what it means. El. W. Wallbank. Foundry 43:299-300 Ag '15

Standardization of methods in the railroad shop. El. Cordeal. Eng M 48:722-7 F '15

Wage systems in the railroad repair shop. El. Cordeal. Eng M 49:51-7 Ap '15

See also Factory management; Foundry management; Machine shop management; Organization in industry; Scientific management

Shops

See also Blacksmith shops; Bridge shops; Carpenter shops; Electric railroads—Shops; Locomotive shops; Machine shops; Mine shops; Plumbing shops; Railroads—Shops

Shops, Repair. See Repair shops

Shore protection

- Coast erosion and protection on Long Island and New Jersey. G. O. Case. map Eng N 74:348-51, 388-91, 438-43 Ag 19-S 2 '15

Concrete bleachers protect Massachusetts shores; defense works at Revere beach. Il diag Eng Rec 71:429, 628 Ap 3, My 15 '15

Design of shore-protection works. R. Bennett. diag Eng N 74:98-101 Jl 15 '15; Abstract. Eng M 50:466-8 D '15

Design suggested for shore-protection works on the New Jersey coast. B. F. Cresson, Jr. diag Eng N 73:904-5 My 6 '15; Eng Rec 71:547-8 My 1 '15

Fighting the sea with compressed air. R. G. Skerrett. Il Sci Am 112:97 Ja 30 '15

Flooring the sea with concrete. W. J. L. Kiehl. Il Sci Am 113:461 N 27 '15

San Francisco shore protection. diag Eng N 74:571 S 18 '15

See also Bulkheads; Flood control; Rivers—Regulation; Sea walls

Shoring and underpinning

- Heavy needling for 450-ton column loads for subway underpinning. Il diag Eng Rec 71:566-6 My 1 '15

Shoring and underpinning—Continued

- Jacking up a concrete arch over a settling pier. W. P. Darwin. *Eng N* 73:588-9 Mr 25 '15
- Large number of light needles hold 606-ton brick wall. *diag Eng Rec* 72:87-8 Jl 17 '15
- New adjustable shore. *Il Concrete Cem* 7:46-7 Jl '15
- New York rapid transit railway extensions. F. Lavis. *Il diag Eng N* 72:1150-5 D 10 '14
- Rebuilding elevated railways in New York city. *Il diag Eng N* 74:830 S 80 '15
- Righting a twenty-thousand-ton grain elevator. *Il Sci Am* 111:524 D 26 '14
- Righting the tilted grain elevator of the Canadian Pacific Ry. *Il Concrete Cem* 6:198 Ap '15
- Shoring a large 9-story building during freezing weather at Detroit. *Il Concrete Cem* 6:197 Ap '15
- Soil tests reported and safe underpinning methods in sand described. J. F. Greathead. *diag Eng Rec* 72:631-3 N 20 '15
- Steel shields protect traffic during removal of New York subway roof. *Il Eng Rec* 72:110-12 Jl 24 '15

See also Building; Subway timbering

Short ballot

- Good government and popular government getting together. H. S. Gilbertson. *Am Ind* 15:15-16 Ap '15
- List of short ballot cities. *Munic J* 33:696 My 30 '15

Short circuits

- Calculation of sudden short circuit phenomena of alternators. N. S. Diamant. *diag 6 p* *Am Inst E E Pro* 34:2043-79 S '15
- Mechanical effects of electrical short-circuits. S. H. Weaver. *Gen Elec R* 18:1066-74 N '15

Shot Iron. See Iron founding**Shoveling machines**

- Gasoline shovels are auxiliary to steam equipment. *Il Eng N* 74:798-9 O 21 '15; Same. *Eng & Min J* 100:806-7 N 13 '15
- Halby shoveling machine for underground mining. *Il Eng & Min J* 99:960 My 29 '15; *Iron Tr R* 57:266 Ag 5 '15
- Power scraper shovel for ore boats. *Il Iron Age* 96:1115-16 N 11 '15

See also Electric shovels; Steam shovels

Shovels

- Adjustable pole-hole digger. *Il Elec W* 66:1049-50 N 6 '15
- Economic choice of shovels for handling different classes of material. C. W. Hartley. *Eng & Contr* 43:302-3 Mr 31 '15

See also Shoveling machines

Shovels, Electric. See Electric shovels**Shovels, Steam. See Steam shovels****Show windows**

- Campaign for increasing hours of show-window lighting. *Elec R & W Elec'n* 66:680 Ap 10 '15
- Co-operative power customers' display at Hartford. *Il Elec W* 65:803 Ja 30 '15
- February window displays. A. J. Edgell. *Il Elec W* 65:284 Ja 23 '15
- Master plumber and the show window. *Il Metal Work* 83:349-50 Mr 5 '15
- New Year window display. A. J. Edgell. *Il Elec W* 64:1267 D 26 '14
- New York appliance salesroom attracted many Christmas shoppers. *Il Elec W* 65:117 Ja 9 '15
- Preventing steaming of show windows. *diag Metal Work* 83:152 Ja 23 '15
- Prismatic-glass window reflector. *Il Elec R & W Elec'n* 67:440-1 S 4 '15
- Show-window lighting in war time. J. S. Dow. *Il Am Gas Light J* 102:305 My 17 '15
- Stimulating sales by window displays. J. P. Zingg. *Il plans Metal Work* 83:564-8+ Ap 16 '15
- Successful merchandising for the plumber. H. Whitehead. *Dom Eng* 70:78-9 Ja 16 '15
- Talking show window. *Il Sci Am* 113:431 N 13 '15
- Using a store entrance for night displays: elevated show windows. *Il Sci Am* 112:155-6 F 13 '15
- Value of window display. *Am Gas Light J* 103:52-4 Jl 26 '15

Window displays boost regulator sales. *Il Metal Work* 83:46-8 Ja 1 '15

Shower baths

- Shower baths in the schools. J. Graham. *Il diag Dom Eng* 70:233-5 F 20 '15
- Shower equipment in Jersey schools. plans *Metal Work* 83:837 Je 11 '15

See also Bath cars

Shrapnel shells

- Ammunition components, United States army—principle dimensions and general specifications. *Iron Age* 96:sup358a Ag 12 '15
- Banding and nosing press for shrapnel. *Il Iron Age* 96:1104 N 4 '15
- Cast vs. forged shrapnel casing. *Foundry* 43:298-9 Ag '15
- Collapsing adjustable shrapnel tap. *Il Iron Age* 96:745 S 30 '15
- Collapsing tap for shell work. *diag Iron Tr R* 57:447 S 2 '15
- Details of Russian shrapnel. H. M. Davis. *Iron Age* 96:797 O 7 '15
- Die head for threading shrapnel parts. *Il Iron Age* 96:981 O 23 '15
- Equipment for forging shrapnel cases. C. A. Tupper. *Iron Age* 96:512-14 S 2 '15
- Ford-Smith shrapnel shell grinder. *Il Mach* 22:68-9 S '15
- Forging shrapnel shells. D. T. Hamilton. *Il diag Mach* 21:514-13 Ap '15; Same. *Sci Am* 79:404-6 Je 26 '15
- 14-in. heavy automatic shrapnel lathe. *Il Iron Age* 95:454 F 25 '15
- Grinding center bosses from shrapnel. *Il Iron Age* 96:568 S 9 '15
- Grinding large shells and projectiles. C. O. Smith. *Il diag Iron Age* 95:445-7 F 25 '15
- Heat-treatment and testing of shrapnel shells. J. M. Wilson. *diag Mach* 22:28-31 S '15
- Heavy single operation shell lathe. *Il Iron Age* 96:82 Jl 8 '15
- Hydraulic nosing and banding presses. *Il Mach* 22:72 S '15
- Machining and assembling shrapnel cases. C. A. Tupper. *diag Iron Age* 96:570-3 S 9 '15
- Machining of a shrapnel shell case: the Reed-Prentice system. *diag Iron Age* 95:73-4 Ja 7 '15
- Machining shrapnel shells. D. T. Hamilton. *Il Mach* 21:519-39 Ap '15; Same abn. *Sci Am* 80:12-13 Jl 8 '15
- Machining shrapnel shells: tool equipment used on the Potter & Johnston automatic chucking and turning machine. *Il diag Mach* 21:572-5 Mr '15
- Making cartridge cases. D. T. Hamilton. *Il diag Mach* 21:551-6 Ap '15; Excerpt. *Sci Am* 80:29-30 Jl 10 '15
- Making fuse parts. *Il diag Mach* 21:641-50 Ap '15
- Manufacture of shrapnel. *Il diag Metal Ind n s* 13:137-9 Ap '15
- Pneumatic press for banding shrapnel. *Il Iron Age* 96:1398 Je 24 '15
- Shrapnel and shrapnel manufacture. D. T. Hamilton. *Il diag Mach* 21:609-13 Ap '15; Same. *Sci Am* 79:385-8 Je 19 '15; Abstract. *Eng M* 49:416-19 Je '15
- Special shrapnel cutting-off machine. *Il Iron Age* 96:193 Jl 22 '15
- Spraying shrapnel shells. *Il Iron Age* 96:355 Ag 12 '15
- Trimming machine for shrapnel shells. *Il Iron Age* 95:1225 Je 3 '15
- Vertical milling machine for shrapnel. *Il Iron Age* 95:1281 Je 10 '15
- Victor shrapnel shell tap. *Il diag Mach* 22:70 S '15

Shrinking. See Fitting (machinery)**Shrubs**

- Selecting trees and shrubs. *Am For* 21:591-3 Ap '15

Siberia

- Opportunities for electrical manufacturers in Siberia. *Elec W* 65:287 Ja 23 '15
- Topographic features of Siberia. C. W. Purington. *Il maps Econ Geol* 10:453-61 Jl '15
- Trip to the Siberian-Mongolian frontier. N. B. Knox. *Il Eng & Min J* 98:1027-33 D 12 '14

Siberia—Continued**Industries and resources**

Ridder mine of the Irtysk corporation. *Il map Eng & Min J 99:599-603 Ap 3 '15*

Siberian railway

Connecticut to Poland by the way of the Pacific; how munitions are shipped to Russia across Asia. H: H. Suplee. *map Sci Am 113: 115 Ag 7 '15*

Vladivostok open all the year. J. K. Caldwell. *Sci Am 113:487 D 4 '15*

Sibley, Missouri**Bridges**

New bridge across the Missouri river at Sibley. *Il diag Ry Age 59:13-16 Jl 2 '15*

Sibley college. See Cornell university. Sibley college

Sicily. See Geography—Sicily**Sidewalks**

Construction details and costs. *Munic J 38:153-9 F 4 '15*

Cost of resurfacing macadam walks with asphalt. Lincoln park, Chicago. M. D. Blumberg. *Eng & Contr 43:512-13 Je 9 '15*

Sidewalk problem; its solution in Pawtucket, Rhode Island. *Eng N 73:843 Ap 29 '15*

Sidewalk work in Cincinnati. D. L. Barr. *Munic J 38:763-6 Je 3 '15*

Sidewalks in cities, 1915; tabulation. *Munic Eng 48:261-2 Ap 15*

Street and sidewalk improvement in the United States and Canada; tabulation. *Munic Eng 48:352-8 Je '15*

See also Pavements

Sidewalks, Concrete

Costs and methods on the construction of a large concrete sidewalk. Harrisburg, Pa. J. D. Justin. *Eng & Contr 44:166-7 S 1 '15*

Destruction of cement sidewalks by trolley poles. C. H. Fuller. *Elec Ry J 46:332-3 O 16 '15*

Expansion in concrete sidewalks. *Munic J 38: 770-1 Je 3 '15*

Making concrete walks on the farm. F. H. Wilson. *Il diag Bldg Age 37:71 F '15*

Splitting of concrete sidewalks surrounding iron posts. C. H. Fuller and others. *diag Concrete Cem 6:246-8 My '15*

Sieges

Mining and countermining of fortifications. *Il Sci Am 111:464-5 D 5 '14*

Siena**Architecture**

American academy in Rome; the Palazzo Piccolomini at Siena. K. E. Carpenter. *Il Am Inst Arch J 3:132-3 Ap '15*

Sieves

Standardization of no. 200 cement sieves. R. J. Wig and J. C. Pearson. *pls U S Bur Stand Tech Pa 42:1-51 '14*

Sight

Minimum visual angle. *Sci Am S 80:93 Ag 7 '15*

Recent experiments on vision in animals. H. M. Johnson. *biblog Illum Eng Soc 10: 502-14 no 6 '15*

Resumé of the physical, physiological and psychic phases of vision. N. M. Black. *diags Illum Eng Soc 10:562-86 no 7 '15*

Visual pattern-discrimination in the vertebrates: difference-threshold for band-width in the monkey and the domestic chick. H. M. Johnson. *J Fr Inst 180:238-40 Ag '15*

See also Color sense; Eye; Spectacles

Sights for firearms. See Firearms—Sights

Signals

New hydrographic signal of the U. S. coast and geodetic survey. *diags Eng N 74:27-8 Jl 1 '15*

Signaling apparatus used by a ships. *Il Sci Am 113:266 S 25 '15*

See also Aeronautics—Signals; Automobile signals; Electric railroads—Signals; Electric signals; Fire alarms; Fog signals; Light signals; Pneumatic signals; Railroads—Signals; Telegraph; Time signals; Wireless telegraph

Signals, Electric. See Electric signals

Signals, Mine. See Mine signals

Signals, Pneumatic. See Pneumatic signals

Signals, Railroad. See Railroads—Signals

Signals, Submarine. See Submarine signals

Signs

Holder for danger signs. J. E. Cooley. *Il Eng & Min J 100:477 S 18 '15*

New type of illuminated sign. *Il Illum Engr 8:400-1 S '15*

See also Car signs; Electric signs; Road signs; Street signs

Silage. See Ensilage

Silence. See Sound

Silica, Fused

Fused silica dishes for the concentration of sulphuric acid. A. E. Marshall. *diag Met & Chem Eng 13:136-7 Mr '15*

Heat transmission capacity of a silica dish. W. K. Lewis. *Il diag J Ind & Eng Chem 7:410-14 My '15*

Silica brick. See Fire brick

Silicate of soda. See Sodium silicate

Silicates

Hydration of Portland cement. A. A. Klein and A. J. Phillips. *pls U S Bur Stand Tech Pa 43:3-71 '14*

Silicon oxycarbide. See Fibrox; Silundum

Silicon steel

Longest simple truss span in world to be erected over Ohio river at Metropolis. *diag Eng Rec 72:53-4 Jl 10 '15; Abstract (Silicon steel for bridge construction). Eng M 49:913 S '15*

Ohio river bridge for the C., B. & Q. R. R. *diag Eng N 74:230-2 Jl 29 '15*

Silk

Heddles for weaving broad silks. *Textile World 50:213 N '15*

International classification of raw silks by its defects. W. P. Seem. *Textile World 48:485-8, 579-81; 49:81-4, 157-9, 326-8 F-Je '15*

Silk culture in America. C. A. Byers. *Il Textile World 49:332-4 Je '15*

Streaks in silk goods. *Textile World 49:102-3 Ap '15*

See also Textile industry and fabrics

Dyeing

See Dyes and dyeing—Silk

Silk, Artificial

Dyeing artificial silks. E. C. T. Bick. *Textile World 49:119-20 Ap '15*

Formula for treating artificial silk. *Textile World 48:328 D '14*

Manufacture of artificial lustrous threads by the viscose process. W. F. Cooper. *Textile World 50:129-30 O '15*

Silk convention, National. See National silk convention

Silk machinery

Machine for shearing or picking silk goods. *Il Textile World 49:377-8 Je '15*

SPH ties. See Railroad ties

Sil-O-Cel powder. See Celite

Silos

Chemical changes during silage formation. R. E. Neidig. *Am Chem Soc J 36:2401-13 N '14*

Constructing galvanized iron silo roof. *diags Metal Work 83:534-6 Ap 9 '15*

Silos, Concrete

Building concrete silos—monolithic construction—types of commercial equipment. C. D. Gilbert. *Il diags Concrete Cem 7:58-62, 82-3 Ag '15*

Building concrete silos—the plastered silo. *Il Concrete Cem 7:122-4 S '15*

Building concrete silos—unit construction with blocks and staves; with cast tables. C. D. Gilbert. *Il diags Concrete Cem 7:3-6, 37-8 Jl '15*

Concrete silos are preferred in Missouri. *Concrete Cem 7:113 S '15*

Methods and costs in constructing a combined concrete silo and water tank. *Il diag Concrete Cem 8:162-4 Mr '15*

Silos, Concrete—Continued

- Methods used in constructing a 108-ft. monolithic concrete silo near Salona, Pa. *Il diag Concrete Cem* 6:301-2 *Je* '15
- Silo form with new features. *Il Concrete Cem* 7:126-7 *S* '15

Silt

- Solving the silt problem: reservoirs suggested for muddy streams of the Southwest. *L: C. Hill, Eng Rec* 70:609-10 *D* 5 '14

Silundum

- Preparation, properties and composition of silundum. *S: A. Tucker and A. Lowy, Il diag J Ind & Eng Chem* 7:565-71 *Jl* '15

Silver

- Action of finely divided silver on α -bromo- and α -odopalmitic acids: synthesis of two isomeric ditetradecylsuccinic acids. *D. B. Jones, Am Chem Soc J* 37:586-94 *Mr* '15
- Experiments in the enrichment of silver ores. *L: G. Ravicz, Econ Geol* 10:368-89 *Je* '15
- Gold and silver statistics. *F: Hobart, Eng & Min J* 99:47-8 *Ja* 9 '15
- Milling at the Niipissing mines co. *Eng & Min J* 99:1124 *Je* 26 '15
- New crystalline variety of silver. *T. C. Choudhri, Am Chem Soc J* 37:2037-9 *S* '15
- Occurrence of silver in argentiferous galena ores. *A. E. Nissen and S: L. Hoyt, pls Econ Geol* 10:172-9 *F* '15
- Potential of silver against silver ion in concentrated solutions of potassium and of sodium chloride, and its relation to the activities of such solutions. *G: S. Forbes and F: O. Anderegg, Am Chem Soc J* 37:1676-85 *Jl* '15
- Treatment of waste material containing silver. *R. J. Marsh, Metal Ind n s* 13:314-17 *Ag* '15
- See also* Cyanide process; Silver metallurgy; Silver mines and mining; Silver plating; Silver salts; Silverware

Silver assaying

- Determination of silver in ores and concentrates containing platinum and palladium. *A. M. Smoot, Eng & Min J* 99:701 *Ap* 17 '15
- Gold and silver assaying. *S. Fischer, Jr. Met & Chem Eng* 12:771-3 *D* '14

Silver iodide

- Properties of silver iodide interpreted in relation to recent thermodynamic conceptions. *G. Jones and M. L. Hartmann, diag Am Chem Soc J* 37:752-75 *Ap* '15

Silver metallurgy

- Chloridizing blast roasting and leaching. *G. A. Keep, Il diag Eng & Min J* 99:265-9, 315-22 *F* 6-13 '15
- Chloridizing ores at Silver City, Utah. *Il diag Met & Chem Eng* 12:757-9 *D* '14
- Desilverizing copper matte with lead. *Eng & Min J* 99:1046 *D* 12 '14
- Lead acetate and zinc salts in silver extraction. *C: R. Morris, Eng & Min J* 100:189-90 *Jl* 31 '15
- Phillips process for treating cobalt-silver ores. *Eng & Min J* 99:1120 *Je* 26 '15
- Progress in gold and silver metallurgy in 1914. *Met & Chem Eng* 13:3-5 *Ja* '15
- Recovery of mercury from amalgamation tailing. *Buffalo mines, Cobalt; with flow sheet. E. B. Thornhill, Am Inst Min E Bul* 104:1653-7 *Ag* '15; *Abstract, Met & Chem Eng* 13:380-1, 873 *My*, *N* 15 '15
- See also* Cyanide process

Silver mines and mining

- Alta activities. *Il Eng & Min J* 99:689-90 *Ap* 17 '15
- Contagas mines; report for year ended Oct. 31, 1914. *Eng & Min J* 99:197 *Ja* 23 '15
- Fond du Lac silver strike; discovery not verified. *G. C. Bateman, Eng & Min J* 99:787 *My* 1 '15
- Gold and silver in Chile. *M. R. Lamb, Il Eng & Min J* 99:847-9 *My* 15 '15
- Tonopah in 1914. *F: Bradshaw, Eng & Min J* 99:154-5 *Ja* 16 '15
- Volcano, a new Nevada strike. *F. C. Lincoln, Il Eng & Min J* 100:73 *Jl* 10 '15

Silver nitrate

- Potential of silver in nonaqueous solutions of silver nitrate. *V. L. Gibbons and F. H. Getman, bibliog diag Am Chem Soc J* 36:1630-55 *Ag* '14

- Use of silver nitrate as a testing agent. *Int Marine Eng* 20:85 *F* '15

Silver nitrite

- Determination of the solubility of silver nitrite and its degree of dissociation in a saturated solution. *H: J. M. Creighton and W: H. Ward, Am Chem Soc J* 37:2333-8 *O* '15

Silver plating

- Making the silver solutions. *O. A. Hillman, Metal Ind n s* 13:416-17 *O* '15
- Silver solution assay. *E. J. Hall, Metal Ind n s* 13:154 *Ap* '15
- See also* Electroplating; Silvering

Silver salts

- New hydroxyurethanes and chromoisomeric silver salts of their acyl derivatives. *L. W. Jones and R. Oesper, Am Chem Soc J* 36:2208-23 *O* '14
- Relative solubility of certain silver salts. *A. E. Hill, Am Chem Soc J* 37:510-13 *Mr* '15
- Solubility of certain difficultly soluble silver salts. *A. Thiel, Am Chem Soc J* 37:508-10 *Mr* '15

Silvering

- Protecting silvered mirrors by copper plating. *Il diag Sci Am S* 79:28 *Ja* 9 '15

Silverware

- South American market for jewelry and silverware. *U S Sp Cons Rep* 70:1-23 '15

Si Maloe

- Logging Rasak and Lagan. *T. R. Helms, Il Am For* 21:1050-3 *N* '15

Sinking funds

- Premium or discount on bonds in sinking fund. *S. Walton, J Account* 19:390-2 *My* '15
- Sinking funds in rate valuations. *W. H. Lawton, J Account* 19:191-7 *Mr* '15

Sintering

- Flue dust sintering plant at Gary, Ind. *Il plan Iron Age* 95:1168-70 *My* 27 '15
- Mechanical progress of sintering. *B. G. Klugh, diag Iron Tr R* 57:835-8+ *O* 28 '15; *Same, Iron Age* 96:1000-4 *O* 28 '15; *Discussion, H. A. Brassert, Iron Tr R* 57:845 *O* 28 '15; *Discussion, R. E. Brooke; H. A. Brassert, Iron Age* 96:1004-5+ *O* 28 '15
- New sintering plant at Gary, Ind. *plan Eng & Min J* 100:107 *Jl* 17 '15
- Rotary sintering kilns at Gary. *H. C. Estep, Il diag Iron Tr R* 56:1020-2 *My* 20 '15
- See also* Dwight-Lloyd process

Siphons

- Design and construction features of reinforced concrete sewer siphons under New York subways. *T. L. Wilson, Eng & Contr* 43:128-9 *F* 10 '15
- Method and cost of constructing an inverted sewer siphon of 12 in. cast iron pipe, encased in concrete, beneath small stream at Carlisle, Pa. *C. A. Bryan, diag Eng & Contr* 42:151-3 *Ag* 12 '14
- Siphoning water from series of drilled wells to a common pump well at Kokomo, Ind. *O. O. Jones, plan Eng & Contr* 43:191 *Mr* 3 '15
- Why does the siphon break? *diag Dom Eng* 72:173 *Ag* 7 '15

Sirups. See Syrups

- Sizing (textiles). *See Cotton sizing*

- Skim gate. *See Foundries—Equipment and supplies*

Skin effect

- Experimental researches on skin effect in conductors. *A. E. Kennelly, F. A. Laws and P. H. Pierce, Il diag Am Inst E E Pro* 34:1749-1809; *Bibliog.* 1809-14 *Ag* '15
- Skin effect in bimetallic wires. *J: M. Miller, Elec W* 65:1612-13 *Je* 19 '15

- Skykomish basin, Washington
 Petrology and economic geology of the Skykomish basin, Washington. *W. S. Smith, Il map Sch Mines Q* 36:154-85 *Ja* '15

Skylights

- Flat skylight on structural steel frame. *diag Metal Work* 83:759-61 *My* 28 '15
- Improved skylight. *W: C. Linton, Il Metal Work* 84:550 *O* 29 '15
- New type of skylight construction. *diag Iron Age* 96:1164 *N* 18 '15
- Skyscrapers. *See High buildings*

- Slabbing machine**
Vertical slabbing machine. *Il Iron Tr R 56:1105*
Je 3 '15
- Slag**
Action of fluorspar on basic open-hearth slags. W. S. Hamilton. *Met & Chem Eng 13:8 Ja '15*
Advantages of high-lime slags in the smelting of lead ores. S. E. Bretherton. *Am Inst Min E Bul 104:1595-9 Ag '15*; Discussion. 108: 2479-81 D '15
Blast furnace slag for railway ballasting. *Il plan Engineer 130:395-6 O 22 '15*
Blast furnace slag handling system. F. L. Prentiss. *Il Iron Age 95:1396-8 Je 24 '15*
Characteristics of slag and chat ballast. P. H. Hamilton. *Ry Age 58:1437-8 Je 18 '15*
Handling of iron and cinder at the blast furnace. J. E. Johnson, Jr. *Il Met & Chem Eng 13: 85-9 F '15*
High phosphorus slag from open-hearth or electric furnaces. *Iron Age 96:295 Ag 5 '15*
How to make steam from slag. W. L. Johnson. *diags Iron Tr R 55:1139-40 D 17 '14*
Kennedy slugger type crusher. *Il Iron Tr R 57:27 Jl 1 '15*
Making money from furnace slag. *Il Iron Tr R 56:1818-19 Je 24 '15*
Metal loss in copper slags. F. E. Lathe. *Eng & Min J 100:215-17, 263-8, 305-8 Ag 7-21 '15*
Slags from titaniferous ores. F. E. Bachman. *diag Iron Tr R 55:1040-2 D 3 '14*
Special type of slag handling crane. *Il Iron Age 95:939 Ap 29 '15*
Use of blast furnace slag as an aggregate in concrete. *Concrete Cem 5:247-9; 6:210-11 D '14, Ap '15*
Zinc oxide from lead blast furnace slag, as in operation at south Chicago. H. B. Pulsifer. *Il Met & Chem Eng 13:783-5 N 1 '15*
See also Blast furnaces
- Transportation**
Tariffs on waste materials stricken out. *Ry R 57:40-1 Jl 10 '15*
- Slag settlers**
Granby tapered settler. F. E. Lathe. *diags Eng & Min J 100:270 Ag 14 '15*
Lead smelting at El Paso. H. F. Easter. *Am Inst Min E Bul 104:1493-1506 Ag '15*; Excerpts (Oil-fired settlers at El Paso) *Eng & Min J 100:356-7 Ag 23 '15*
- Slate**
Quarrying slate for structural purposes. *Il Metal Work 84:445-6 O 1 '15*
Use of slate as a roofing material. J. C. Taylor. *Bldg Age 37:46 Mr '15*
- Slaughtering and slaughter houses**
Municipal abattoirs. *Munic J 39:252-3 Ag 19 '15*
- Sleeping cars**
Ventilation of sleeping cars. T. R. Crowder. *Ry Age (Mech ed) 89:464-6 S '15*
Wisconsin berth law annulled. *Ry Age 59:12 Jl 2 '15*
- Equipment**
Sleeping car towel receptacle. *plan Ry Age 59: 572 S 24 '15*
- Sleeping porches**
Details of pocket window frame. W. S. Wilkin. *diags Bldg Age 37:56-7 Ag '15*
- Silex, Edwin E.**
Inventor, engineer, executive. C. F. Williams. *por Iron Tr R 56:179-4 Ja 21 '15*
- Slide rule**
Barth slide rule for pulp measurement. C. G. Barth, Jr. *Il Eng & Min J 100:228 Ag 7 '15*
How to read a slide rule. *diags Power 42:192-4 Ag 10 '15*
Logarithmic scales made from worn-out slide-rule. F. W. Salmon. *diags Mach 22:146 O '15*
New friction head slide rule for heating work and power piping. *diags Heat & Ven 12: 50-1 Ap '15*
Quick solar reduction by slide rule. *Il Eng N 74:267 Ag 5 '15*; Same. *Eng & Min J 100:353 Ag 28 '15*
Railway motor characteristic curves. E. E. Kimball. *Il Gen Elec R 18:296-9 Ap '15*
- Simple solution of a quadratic equation by slide rule. S. Shaw. *Eng Rec 71:754 Je 12 '15*
Slide-rule quadratics. R. N. Miller. *Power 42: 422-3 S 21 '15*
Strength computing slide rule for reinforced concrete beams and slabs. *Il Concrete Cem 7:83 Ag '15*
- Slide valves**
Slide valve lubrication on the Buffalo, Rochester & Pittsburgh. *diags Ry Age 59:283-4 Ag 13 '15*
- Slides.** *See Earthwork—Slides*
- Silme.** *See Ore pulp*
- Slings and hitches**
Care and use of hoisting accessories: wire rope, manila rope, hooks, chains, accessories, lubrication of wire rope, strength of slings. *Mach 21:297-8 D '14*
Unusual rigging used to set heavy turbine parts in close quarters. F. M. Biersach. *diags Eng Rec 73:24-5 Jl 3 '15*
Use of slings in handling loads. *diags Eng & Contr 42:338-9 O 7 '14*
- Sludge.** *See Sewage sludge*
- Sludge, Activated.** *See Sewage aeration*
- Sluice gates**
Inclined seat eliminates sliding friction in new sluice gate. *diag Eng Rec 72:214 Ag 14 '15*
90-in. circular gate for a 120-ft. head. *Il diags Eng N 73:365 My 6 '15*
- Smell**
Sense of smell in insects. *Sci Am S 79:30 Ja 30 '15*
- Smelter fumes**
Effect of sulphur dioxide on human beings. *Eng & Min J 100:385-6 N 27 '15*
Metallurgical smoke. C. H. Fulton. *bibliog Il diags U S Bur Mines Bul 84:1-89 '15*; Excerpts. *Sci Am S 80:310-11 N 13 '15*
Progress in the metallurgy of zinc in Great Britain. *Eng & Min J 100:469 S 18 '15*
Report of the Selby smelter commission. *J Ind & Eng Chem 7:41-5 Ja '15*; Same cond. *Eng & Min J 98:1075-8 D 19 '14*
Smelter-smoke litigation in California. *Met & Chem Eng 13:208 Ap '15*
Solution of smoke, fume and dust problems by electrical precipitation. L. Bradley. *Met & Chem Eng 13:811-14 D 1 '15*
Treating sulphurous fumes at the Mammoth smelter. A. H. Martin. *Il Met & Chem Eng 12:769-70 D '14*
Vapor pressure of arsenic trioxide. H. V. Welch and L. H. Duschak. *Il U S Bur Mines Tech Pa 81:1-20 '15*
See also Electric precipitation
- Smelteries.** *See Smelting works*
- Smelting**
Advances in copper smelting. F. Laist. *Met & Chem Eng 13:658 O 1 '15*
Advantages of high-lime slags in the smelting of lead ores. S. E. Bretherton. *Am Inst Min E Bul 104:1595-9 Ag '15*; Discussion. 108:2479-81 D '15
Blast furnace vs. reverberatory. *Eng & Min J 99:832-3 My 8 '15*
Coal-dust fired reverberatory furnaces of Canadian copper co. D. H. Browne. *diags Am Inst Min E Bul 97:49-60 Ja '15*; Same cond. *Met & Chem Eng 13:182-4 Mr '15*; Abstract. *Am Soc M E J 37:187 Mr '15*
Copper Queen smelting works. R. H. Vail. *Il Eng & Min J 99:1-6 Ja 2 '15*
Copper smelting in Japan. M. Eisler. *Il diags Am Inst Min E Bul 95:2661-703 N '14*; Discussion. 101:1173-4 My '15
Copper smelting in the Caucasus. *map Eng & Min J 99:650-3 Ap 10 '15*
Definition of smelting. *Eng & Min J 100:531 S 25 '15*
Development of zinc smelting in the United States. G. C. Stone. *Met & Chem Eng 13: 726-7 O 15 '15*
High blast heats in Mesaba practice. W. Mathesius. *Am Inst Min E Bul 98:539-55 Mr '15*; Same cond. *Iron Age 95:476-8 F 25 '15*; Same cond. *Iron Tr R 56:365-6, 368 F 13 '15*; Abstract. *Met & Chem Eng 12:177-8 Mr '15*; Discussion. *Am Inst Min E Bul 101:1100-7 My '15*

Smelting—Continued

- High-lime slags in lead smelting; abstract. S. H. Bretherton. *Met & Chem Eng* 13:766-7 O 15 '15
- Improvements at Trail, B. C. Eng & Min J 99:290 F 6 '15
- Lead smelting at El Paso. H. F. Easter. *Am Inst Min E Bul* 104:1493-1506 Ag '15; Abstract. *Met & Chem Eng* 13:814 N 1 '15
- Metal loss in copper slags. F. E. Lahe. Eng & Min J 100:215-17, 263-8, 305-8 Ag 7-21 '15
- Newnam hearth. W. E. Newnam. *Am Inst Min E Bul* 106:2139-45 O '15; Same. Eng & Min J 100:628-30 O 16 '15; Excerpts. *Met & Chem Eng* 13:974 D 15 '15
- Points in the economics of zinc metallurgy. W. R. Ingalls. Eng & Min J 100:551-4 O 2 '15
- Progress in the smelting of Mayari ore. R. V. McKay. *Iron Age* 93:1386-9+ Je 4 '14; Same. *Iron Tr R* 55:1216-21 D 31 '14
- Pyrite smelting. E. D. Peters. Eng & Min J 98:1134-5 D 26 '14
- Pyritic smelting at Mount Lyell. R. Sticht. *Met & Chem Eng* 13:116-18 F '15
- Pyritic smelting; discussion. *Am Inst Min E Bul* 100:739-61 Ap '15
- Reverberatory smelting practice of Nevada consolidated copper co. *Met & Chem Eng* 13:681-2 O 1 '15
- Reverberatory smelting practice of Nevada consolidated copper co. R. E. H. Pomeroy. *diags plan Am Inst Min E Bul* 98:445-53 F '15; Abstract. *Met & Chem Eng* 13:252-4 Ap '15
- Reverberatory waste-heat boilers. L. Duncan. *diag Eng & Min J* 99:152-3 Ja 16 '15
- Slag- and matte-granulating devices. P. E. Barbour. *diags Eng & Min J* 99:239 Ja 30 '15
- Smelting at Anyox, B. C. Eng & Min J 100:804 N 18 '15
- Smelting at Panulillo, Chile. *diag Eng & Min J* 100:787-9 N 13 '15
- Smelting data of British Columbia copper co. F. K. Brunton. Eng & Min J 100:18-19 J1 3 '15
- Smelting methods at Magistral, Durango, Mex. R. W. Bissell. *Sch Mines Q* 38:23-9 N '14
- Use of salt in zinc smelting. Eng & Min J 99:917-18 My 22 '15
- See also Blast furnaces; Furnaces, Metallurgical; Metallurgy; Ore treatment; Slag settlers; Smelter fumes; Smelting works
- Cost**
- British Columbia copper co. smelter; average daily report for May, 1913. F. K. Brunton. *Am Inst Min E Bul* 103:1415-17 J1 '15; Excerpt. *Met & Chem Eng* 13:509 Ag '15
- Smelting costs at Greenwood, B. C. Eng & Min J 100:109 J1 17 '15
- Smelting, Electric**
- Electric iron-ore smelting in Norway. *diags Elec R & W Elec'n* 57:54 J1 10 '15
- Electric smelting for southeastern Alaska. F. C. Farnham. Eng & Min J 99:287 F 6 '15
- Electric smelting for southeastern Alaska. U. S. Rush. Eng & Min J 98:1149 D 26 '14
- Electro-thermic iron-ore smelting in Scandinavia. Eng & Min J 100:351-2 Ag 28 '15
- Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *U S Bur Mines Bul* 77:102-85 '14; Excerpts. *Iron Tr R* 58:1717-22+, 765-7+, 862-7+, 972-5 Ap 8-15, 29, My 13 '15
- Smelting of copper ores in the electric furnace. D. A. Lyon. *diags U S Bur Mines Bul* 81:1-76 '15; Excerpt. *Sci Am S* 80:139 Ag 28 '15
- Smelting of metals in the electric furnace. D. A. Lyon and R. M. Keeney. *U S Bur Mines Bul* 77:72-101 '14
- Thermal efficiency of the electric furnace. W. M. Johnson. *Eng Soc W Pa* 31:488-98; Discussion. 31:499-509 J1 '15
- See also Electric furnaces; Electrometallurgy
- Smelting works**
- British Columbia copper co's smelter, Greenwood, B. C. F. K. Brunton. *diags Am Inst Min E Bul* 103:1401-17 J1 '15
- Copper Queen smelting works. R. H. Vail. *diag Eng & Min J* 99:1-6 Ja 2 '15
- Copper-smelting works of North America. Eng & Min J 99:54 Ja 9 '15
- Cost of cars, electric locomotives, etc., for Arizona copper co.'s new smelter. *diags Eng & Min J* 99:495 Mr 13 '15
- Cost of conveyors at the Arizona copper co.'s new smelter. *diags Eng & Min J* 99:329-30 F 13 '15
- Design, construction and unit costs of the power house for the new smelter of the Arizona copper co., Ltd. Clifton, Ariz. *diags plans Eng & Contr* 43:262-5 S 16 '14
- Designing small copper smelting plants. C. C. Christensen. *diag Eng & Min J* 99:225-8 Ja 30 '15
- Equipment of Arizona smelters. J. Douglas. *Met & Chem Eng* 13:904 D 1 '15
- Power plant of the Granby co. T. Wilson. *diags Power* 42:2-7 J1 6 '15; Abstract. Eng & Min J 100:118-15 J1 17 '15
- Salida smelter. F. D. Weeks. *Am Inst Min E Bul* 104:1691-5 Ag '15; Excerpt (Don'ts in the designing of a smelting works). Eng & Min J 100:328-9 Ag 7 '15; Excerpt. *Met & Chem Eng* 13:814-15 N 1 '15
- Smelting works of the Mond nickel co. A. W. G. Wilson. *diags Eng & Min J* 98:1049-51 D 12 '14
- Supreme court decides against Ducktown company. Eng & Min J 99:1047 Je 12 '15
- Unit construction costs from the new smelter of the Arizona copper co., Ltd. E. H. Jones. *diags Am Inst Min E Bul* 91:1497-1649 J1 '14; Abstract. Eng & Contr 42:560-3 D 16 '14
- Zinc smelter at Langeloth. W. R. Ingalls. *diags plan Eng & Min J* 98:985-9 D 5 '14
- See also Metallurgical plants; Smelter fumes
- Safety devices and measures**
- Accident prevention in smelting works. Eng & Min J 100:448 S 11 '15
- Smoke**
- Effects of fumes from lignite coal and from wood on cement brick chimneys. *Concrete Cem* 5:246-7 D '14
- Metallurgical smoke. C. H. Fulton. *biblog diags U S Bur Mines Bul* 84:1-89 '15; Excerpts. *Sci Am S* 80:310-11 N 13 '15
- See also Cinders; Fuel; Locomotives—Smoke problem; Mechanical draft; Soot
- Smoke helmets**
- Rescue company no. 1 of the New York fire department. *diag Sci Am* 112:283 Mr 27 '15
- Where the smoke helmet would be invaluable: a lesson from the New York subway fire. *diag Sci Am* 112:66 Ja 16 '15
- Smoke inspection. See Smoke prevention**
- Smoke prevention**
- Economy in use of fuel results in elimination of dense smoke. F. M. Logan. *Eng Rec* 72:581-2 N 6 '15
- Eliminating smoke, soot and dirt in steam generation. *diag Textile World* 49:565-7 Ag '15
- German smoke abatement society. J. B. C. Kershaw. *Met & Chem Eng* 13:261-3 Ap '15
- Headroom for smokeless settings. O. Monnett. *Power* 40:885-6 D 22 '14
- How smokeless combustion is secured by the Boston Edison company. *diag Elec W* 66:469 Ag 28 '15
- Mechanical draft and smoke prevention. T. Tait. *Dom Eng* 73:232 N 30 '15
- Metallurgical and special furnaces. O. Monnett. *diags Power* 41:432-3 Mr 30 '15
- Metallurgical smoke. C. H. Fulton. *biblog diags U S Bur Mines Bul* 84:1-89 '15; Excerpts. *Sci Am S* 80:310-11 N 13 '15
- Preventing smoke electrically. H. C. Wolf. *diag Elec W* 66:692-3 S 25 '15
- Problem of the modern city. W. F. M. Goss. *Eng Soc W Pa* 31:229-37 Mr '15
- Reconstructing existing plants. O. Monnett. *diags Power* 40:920-2 D 29 '14
- Record system in a smoke inspector's office. M. A. Rooney. *Power* 42:543-4 O 19 '15
- Reducing smoke in Pittsburgh. J. W. Henderson. *diag Power* 42:152-3 Ag 3 '15
- Return-tubular boiler furnace development. O. Monnett. *diags Power* 40:93-4 J1 21 '14; Same. *Sci Am S* 78:394-5 D 19 '14
- Smoke abatement in house heating boilers. M. A. Rooney. *diag Heat & Ven* 12:17-20 O '15

Smoke prevention—Continued

Smoke abatement in Massachusetts. Power 42: 213-14 Ag 10 '15

Smoke exhaustor for the St. Paul engine house at Chicago. W. S. Lacher. II diag Ry Age 58:98-9 Ja 15 '15

Smokeless locomotive operation without special apparatus. H. H. Maxfield. Ry R 57: 426-9 O 2 '15; Same cond. Ry Age (Mech ed) 89:561-2 N '15; Same cond. Power 43:491-2 O 5 '15

Solution of smoke, fume and dust problems by electrical precipitation. L. Bradley. Met & Chem Eng 18:911-14 D 1 '15

Validity of anti-smoke ordinance. A. L. H. Street. Power 42:478 O 5 '15

Washing locomotive smoke. M. D. Franey. diag plan Ry Age 59:558-60 S 24 '15; Same. Ry Age (Mech ed) 89:511-13 O '15; Same. Power 42: 561-3 O 19 '15; Same cond. Eng N 74:906-7 N 4 '15; Excerpt. Ry R 57:387-8 S 25 '15

Waste-heat boilers. O. Monnett. diag Power 41:196-7 F 9 '15; Same. Eng & Min J 99: 368-9 F 20 '15

See also Electric precipitation; Locomotives—Smoke problem

Smoke prevention association

10th annual convention, Cincinnati, Sept. 8-10. Power 42:493 O 5 '15

Smoke recorder

Smoke recorder and monitor. W. W. Strong. II Power 40:912-13 D 29 '14

Smokeless powder

Manufacture of smokeless powder. E. C. Crossman. Sci Am 112:136 F 6 '15

Munitions of the present war. Ry R 57:373-4 S 18 '15

Smokestacks. See Chimneys**Smudge pots. See Frost protection****Snag boats**

Shallow draft snag boat Swinomish. II plans Int Marine Eng 20:500-2 N '15

Snag boats on flood rivers. D. A. Willey. II Sci Am S 79:149 Mr 6 '15

Snakes

Garden of serpents in the Serotherapeutic institute of Brazil. J. Boyer. II Sci Am 112:447 My 15 '15

Snakes and their value to the agriculturist. R. W. Shufeldt. II Sci Am S 80:344-5 N 27 '15

Snap flasks. See Foundries—Equipment and supplies**Snow**

Remarkable snowfall of the Sierra Nevada. Sci Am 113:144 Ag 14 '15

See also Snowslides

Snow fences. See Railroads—Snow protection and removal**Snow plows**

Snow plow and life guard combined. C. M. Feist. II Elec Ry J 46:332 O 16 '15

Snow removal

Methods introduced in New York last winter cut cost and increased speed of snow removal. J. T. Fetherston. II Eng Rec 71: 640-3 My 22 '15

New York's snow removal plans. II Munic J 37:827-9 D 10 '14

Removal of snow from city streets. Elec Ry J 44:1282 D 12 '14

Report on snow removal work in the city of New York. Good Roads n s 9:254 Je 19 '15

Snow plows on motor trucks clear New York streets. II Eng Rec 71:215 F 13 '15

Snow removal. Elec Ry J 44:1243-9 D 5 '14

Snow removal conference held in Philadelphia April 16 and 17, 1914: report of the committee on resolutions; with discussion. Am Soc M E J 37:92-5 F '15; Same. Sci Am S 79:159-60 Mr 6 '15

Snow removal in Montreal. II Elec Ry J 44:1307-8 D 12 '14

Snow removal in New York. II Munic J 38: 805-7 Je 10 '15

Snow-removal plan for New York city. Eng N 72:1310-11 D 31 '14

Snow removal principles: summary of papers and discussions at Philadelphia conference on snow removal. II Munic J 37:830-2 D 10 '14

See also Railroads—Snow protection and removal

Snow surveys

Snow survey provides basis for close forecast of watershed's yield. J. E. Church, jr. II Eng Rec 71:494-5 Ap 17 '15

Snowslides

Fatal snowslide at Britannia copper co.'s mines. II Eng & Min J 99:628 Ap 3 '15

Soap

Contributions of the chemist to the art of soapmaking. M. H. Ittner. J Ind & Eng Chem 7:935-6 N '15

South American market for soap. U S Sp Cons Rep 66:1-16 '15

Tincture of white soap. Sci Am S 79:211 Ap 3 '15

Social centers

John C. Proctor recreation center, Peoria, Illinois. II plans Arch Rec 37:116-31 F '15

Social work

See also Social centers; Welfare work in industry

Societies

Society bookkeeping; standardized method for recording and checking the accounts. Metal Ind n s 12:233-5 Je '15

Societies, Engineering. See Engineering societies**Society for electrical development**

Annual meeting, New York, May 11. Elec W 65:1265-6 My 15 '15

Work of Society for electrical development. J. M. Wakeman. Elec W 65:1530 Je 12 '15

Society of automobile engineers

Abstracts of the papers presented on the steamer Noramic. Horseless Age 35:797-806 Je 16 '15

Committee reports and papers. Automobile 32: 1057-61, 1083-90, 1103-5 Je 17-24 '15

Mid-west S. A. E. section in Chicago. diag Automobile 33:736-9 O 21 '15

Papers and the discussions at the professional sessions. Horseless Age 35:827-30 Je 23 '15

S. A. E. gas-electric committee reports. diag Automobile 32:401-4 Mr 4 '15

S. A. E. winter session produces six new standards. pors Automobile 32:83-6 Ja 14 '15

Winter meeting, New York. Horseless Age 35: 58-74, 110-13 Ja 13-20 '15

Standards committee

S. A. E. standards work under new rules. II Automobile 32:616-17 Ap 8 '15

Society of chemical industry

Annual meeting, Manchester. Engineer 120:91-2 J1 23 '15

Annual meeting, Manchester, July 14-16. Met & Chem Eng 18:543-6 S 1 '15

Meeting of New York section, Nov. 19. Met & Chem Eng 18:921-3 D 1 '15

Society of naval architects and marine engineers

22d annual meeting, Dec. 10-11, 1914. Int Marine Eng 20:8-22 Ja '15

22d general meeting New York city, Dec. 10-11, 1914. Eng N 72:1231-2 D 17 '14

Society to promote the science of management

Labor problems in scientific management. Iron Age 94:1369-72 D 10 '14

Socket appliances. See Electric apparatus and appliances**Soda**

Contributions of the chemist to the soda industry. F. R. Hazard. J Ind & Eng Chem 7: 281-2 Ap '15; Abstract. Met & Chem Eng 13:285 My '15

Electrolytic cell patents for the production of caustic soda and chlorine. diag Met & Chem Eng 13:815-16 N 1 '15

Feasibility of continuous causticizing. II Met & Chem Eng 13:614-15 Ag '15

Relative value of soda and soda ash. G. B. Morris. Mach 22:61 S '15

Sodium

Birth-time of the world: methods of determining its age. J. Joly. Sci Am S 79:77-9 Ja 30 '15

Sodium—Continued

Fluoboric and fluosilicic acids in the qualitative analysis of sodium. F. C. Mathers and others. *Am Chem Soc J* 37:1516-17 Ja '15
Sea-salt and geologic time. H. S. Shelton. *Sci Am S* 79:79-80 Ja 30 '15

Sodium carbonate

Hydrolysis of sodium carbonate in solution. F. C. Frary and A. H. Nietz. *Am Chem Soc J* 37:2268-73 O '15
Molecular weight of sodium carbonate and the atomic weight of carbon referred to silver and bromine. T. W. Richards and C. R. Hoover. *Am Chem Soc J* 37:95-107 Ja '15

Sodium chloride. See Salt**Sodium ethylate**

Reactions of sodium ethylate with methyl iodide in absolute ethyl alcohol at 25°. H. C. Robertson, Jr. and S. F. Acree. *Am Chem Soc J* 37:1902-9 Ag '15

Reinterpretation of the reactions of sodium methylate and sodium ethylate with 1, 2-dinitrobenzene and 1, 2, 4-dinitrochlorobenzene, and 1, 2, 4-dinitrobenzene. S. F. Acree. *Am Chem Soc J* 37:1909-14 Ag '15

Sodium formate

Rate of reduction of mercuric chloride by sodium formate. G. A. Linhart. *Am Chem Soc J* 37:70-8 Ja '15

Sodium hydrazide

Anhydrous hydrazine; electrolysis of a solution of sodium hydrazide in anhydrous hydrazine. T. W. B. Welsh. *diag Am Chem Soc J* 37:497-508 Mr '15

Sodium hydroxide

Hydrogen potentials of sodium hydroxide solutions and the dissociation constant of water. F. C. Frary and A. H. Nietz. *Am Chem Soc J* 37:2263-8 O '15

Sodium malonic ester

Study of the reactions of sodium malonic ester. C. L. Jackson and F. C. Whitmore. *Am Chem Soc J* 37:1622-37, 1915-34 Je, Ag '15

Sodium methylate

Reinterpretation of the reactions of sodium methylate and sodium ethylate with 1, 2-dinitrobenzene, and 1, 2, 4-dinitrochlorobenzene and 1, 2, 4-dinitrobenzene. S. F. Acree. *Am Chem Soc J* 37:1909-14 Ag '15

Sodium nitrate. *See Saltpeter, Chile*

Sodium phthalate

Acid potassium and acid sodium phthalates as standards in acidimetry and alkalimetry. W. S. Hendrixson. *Am Chem Soc J* 37:2352-9 O '15

Sodium salts

Use of sodium salts in the purification of clays and in the casting process. A. V. Bleininger. *II diag U S Bur Stand Tech Pa* 51:1-40 '15

Sodium silicate

Silicate of soda in dyeing cotton. A. Bolis. *Textile World* 49:117-19 Ap '15

Sodium sulphate

Molecular weight of sodium sulfate and the atomic weight of sulfur. T. W. Richards and C. R. Hoover. *Am Chem Soc J* 37:108-13 Ja '15

Sofas

Cabinet work for the carpenter. F. D. Otter. *diag Bldg Age* 37:49-50 N '15

Soil analysis

Amino-acid nitrogen of soil and the chemical groups of amino acids in the hydrolyzed soil and their humic acids. R. S. Potter and R. S. Snyder. *Am Chem Soc J* 37:2219-27 S '15

Colorimetric determination of phosphorus in soil extracts. C. H. Miller and F. A. Gangler. *J Ind & Eng Chem* 7:819 JI '15

Comparison of silicates and carbonates as sources of lime and magnesia for plants. W. H. MacIntire and L. G. Willis. *II J Ind & Eng Chem* 6:1005-8 D '14

Determination of ammonia in soils. R. S. Potter and R. S. Snyder. *II J Ind & Eng Chem* 7:221-6 Mr '15

Determination of nitrates in soil. R. S. Potter and R. S. Snyder. *J Ind & Eng Chem* 7:868-4 O '15

Determination of nitric nitrogen in soils. E. R. Allen. *diag J Ind & Eng Chem* 7:521-9 Je '15

Determination of soil carbonates; a modification. W. H. MacIntire and L. G. Willis. *II J Ind & Eng Chem* 7:227-8 Mr '15

Determination of sulfates in soils. F. E. Brown and E. H. Kellogg. *J Ind & Eng Chem* 7:886-7 Ag '15

Effect of grinding the soil on its reaction as determined by the Veitch method. F. E. Brown and H. W. Johnson. *J Ind & Eng Chem* 7:778-7 S '15

Method for the determination of the immediate lime requirements of soils. W. H. MacIntire. *II J Ind & Eng Chem* 7:864-7 O '15

Modified kjeldahl flask for determining soil nitrogen. H. A. Noyes. *II Am Chem Soc J* 36:2541-2 D '14

Presence of proteoses and peptones in soils. E. H. Walters. *J Ind & Eng Chem* 7:860-3 O '15

Shaker for the mechanical analysis of soils. F. Ward. *J Ind & Eng Chem* 6:1038 D '14

Strength of nitric acid, period of extraction, and ignition as affecting the gravimetric determination of phosphoric acid in soils. O. L. Brauer. *J Ind & Eng Chem* 6:1004-5 D '14

Soil bacteriology

Tillage of the soil by minute living organisms. *Sci Am S* 80:142 Ag 28 '15

Soil millers

Milling the soil; improving on the old-fashioned plow. L. W. Ellis. *II Sci Am* 112:436 My 8 '15

Soil moisture

Determining the critical moisture content of soils. R. O. E. Davis. *J Ind & Eng Chem* 6:1008-10 D '14

See also Drainage

Soil pressure. *See Earth pressure*

Soil testing

Specifications for uniform screens for soil tests. *Eng N* 73:287 F 11 '15

Soils

Cleaning soils for microscopic examination. W. H. Fry and J. A. Cullen. *J Ind & Eng Chem* 7:40-1 Ja '15

Comparison of silicates and carbonates as sources of lime and magnesia for plants. W. H. MacIntire and L. G. Willis. *II J Ind & Eng Chem* 6:1005-8 D '14

Engineering properties of soils. R. O. E. Davis. *J Ind & Eng Chem* 7:422-5 My '15

Lithium in soils. L. A. Steinkoenig. *J Ind & Eng Chem* 7:425-6 My '15

Loss of nitrogen and organic matter in cultivated Kansas soils and the effect of this loss on the crop-producing power of the soil. C. O. Swanson. *J Ind & Eng Chem* 7:529-32 Je '15

See also Alkali soils; Clay; Drainage; Fertilizers and manures; Foundation soils; Irrigation; Soil analysis; Soil bacteriology; Soil moisture

Soils, Foundation. *See Foundation soils*

Solar electricity. *See Electricity, Solar*

Solar heat. *See Sun*

Solar heaters

Inexpensive solar heating plants. *Metal Work* 82:758 D 11 '14

Solar magnetism. *See Magnetism, Solar*

Solar power plants

Shuman-Boys sun-power plant at Meadi, Egypt. *Eng & Min J* 100:156 JI 24 '15

Utilization of solar energy; abstract. A. S. H. Ackermann. *Am Soc M E J* 37:661 N '15

Solar radiation

New evidence on the intensity of radiation outside the atmosphere. C. G. Abbot, F. E. Fowle and L. B. Aldrich. *Sci Am S* 80:258-9 O 23 '15

Solder and soldering

Aluminum solder. *Elec R & W Elec'n* 67:670-1 O 9 '15

Convenient electric soldering iron. J. N. Graham. *diag Elec Ry J* 46:66 JI 10 '15

Gas furnace for heating soldering irons. R. H. Parsons. *plan Elec Ry J* 46:24 JI 3 '15

Solder and soldering—Continued

- Micro reactions of soldering. J. Scott. *Il Dom Eng* 73:108-4 O 23 '15
- Monarch electric soldering iron. *Il Elec R & W Elec'n* 67:635 O 2 '15
- Soldering and brazing aluminum. *Mach* 21:286-8 D '14
- Soldering commutators and rotors. G. Fox. *diags Power* 42:328-9 S 7 '15
- Various constructions of charcoal fire pots. *diags Metal Work* 84:649-51 N 19 '15
- Working aluminum at 400 degrees fahrenheit. *Il Horseless Age* 36:373 O 15 '15
- See also Welding*
- Solenoid brake.** *See Brakes*
- Solenoids**
- Solenoid and electromagnet windings. G. L. Hedges. *Am Inst E E Pro* 34:2595-614 N '15
- Solidago**
- Volatile oils of the genus solidago. H. R. Miller and M. H. Eskew. *Am Chem Soc J* 36:2538-41 D '14
- Soluble ferments.** *See Enzymes*
- Solution (chemistry)**
- Absorption and the surface tensions of aqueous solution of homologous fatty acids and alcohols. M. Neidle. *Am Chem Soc J* 37:513-15 Mr '15
- Anhydrous hydrazine as a solvent. T. W. B. Welsh and H. J. Broderson. *diags Am Chem Soc J* 37:316-24 Ap '15
- Conductivity and viscosity of solutions of electrolytes in formamid. P. B. Davis, W. S. Putnam and H. C. Jones. *il diags J Fr Inst* 180:567-601 N '15
- Determination of the solubility of silver nitrite and its degree of dissociation in a saturated solution. H. J. M. Creighton and W. H. Ward. *Am Chem Soc J* 37:2333-8 O '15
- Distribution of an electrolyte between water and some second solvent and its dissociation constant in aqueous solution. H. J. M. Creighton. *J Fr Inst* 180:63-74 JI '15
- Effect upon their solution tensions of dissolving the alkali and alkali earth metals in mercury, and the constitution of such solutions. G. M. Smith. *Am Chem Soc J* 37:76-80 Ja '15
- Entropy of vaporization as a means of distinguishing normal liquids. J. H. Hildebrand. *Am Chem Soc J* 37:970-8 My '15
- Hydrogen- and hydroxyl-ion activities of solutions of hydrochloric acid, sodium and potassium hydroxides in the presence of neutral salts. H. S. Harned. *diag Am Chem Soc J* 37:2460-82 N '15
- Hydrogen potentials of sodium hydroxide solutions and the dissociation constant of water. F. C. Frary and A. H. Niets. *Am Chem Soc J* 37:2268-8 O '15
- Ionic hydration and transference numbers of caesium chloride. R. W. Washburn and E. B. Millard. *Am Chem Soc J* 37:694-9 Ap '15
- Measurement of vapor pressure lowering by the air saturation method. E. W. Washburn and E. O. Heuse. *il diags Am Chem Soc J* 37:309-21 F '15
- Method for the calculation of the hydration of the ions at infinite dilution, and the ideal diffusion coefficient as applied to the hydrodiffusion of electrolytes. G. M. Smith. *Am Chem Soc J* 37:722-33 Ap '15
- Relative solubility of certain silver salts. A. E. Hill. *Am Chem Soc J* 37:510-13 Mr '15
- Solubility curves of salt hydrates: calcium nitrate. H. S. Taylor and W. N. Henderson. *Am Chem Soc J* 37:1688-94 JI '15
- Solubility of certain difficultly soluble silver salts. A. Thiel. *Am Chem Soc J* 37:508-10 Mr '15
- Solubility of magnesium carbonate in natural waters. R. C. Wells. *Am Chem Soc J* 37:1704-7 JI '15
- Solubility of mixtures of sodium and potassium chlorides in solutions of hydrochloric acid. W. B. Hicks. *diag Am Chem Soc J* 37:844-7 Ap '15
- Studies of the vapor pressure of solutions; a static method for the determination of the difference between the vapor pressure of solution and that of solvent. J. C. W. Fraser and B. F. Lovelace. *diags Am Chem Soc J* 36:2439-49 D '14
- Vapor pressures of certain alcoholic solutions. O. F. Tower and A. F. O. Germann. *Il Am Chem Soc J* 36:2449-56 D '14
- What is a normal solution? D. M. Liddell. *Power* 42:448 S 23 '15
- See also Boiling points; Colloids; Concentration cells; Electrolysis; Electrolytes; Osmosis*
- Solutions, Alkalimetric.** *See Alkalimetric solutions*
- Solutions, Solid**
- Constitution of the iron-carbon alloys: a chemical theory to explain the different properties by the existence of ferrated carbides. G. Auchy. *Iron Age* 95:50-1 Ja 7 '15
- Heat of formation of solid solutions. H. W. Foote and B. Saxton. *Am Chem Soc J* 36:1704-8 Ag '14
- Solutions, Standardized.** *See Volumetric analysis*
- Solutions, Supersaturated**
- Rhythmical precipitation of ferrous ferricyanide and ferrous hydroxide in jelly. H. J. M. Creighton. *Il Am Chem Soc J* 36:2357-60 N '14
- Soot**
- Results with mechanical soot blowers on boilers. A. J. Fisher. *Power* 42:314 Ag 31 '15
- Schutte & Koerting soot conveyor. *diag Power* 41:876 Ja 29 '15
- Soot blowers as adapted for use on economizers. *diag Power* 42:184-5 Ag 10 '15
- Soot removal. H. R. Blessing; J. Priefer. *Power* 41:615-16 My 4 '15
- Tests of hand and mechanical soot blowers. A. W. Conklin. *diag Power* 42:48-50 JI 13 '15
- Unican vertical water-tube boiler cleaner. *diags Power* 42:223 Ag 17 '15
- Sound**
- Instance of the parabolic reflector reversed; Galveston sea wall as a sound reflector. L. F. J. Zerbe. *Sci Am* 113:235 S 11 '15
- Zones of silence. W. J. L. Kiehl. *Sci Am* 112:380 Ap 17 '15
- See also Acoustics, Architectural; Noise; Phonetics; Radiation*
- Sound wheel, a novel wireless detector.** *Il Sci Am* 112:384 Ap 24 '15
- Sounding**
- Electrical sounding. H. R. Gilson. *diags Elec R & W Elec'n* 66:1002-3 My 29 '15; *Abstract Eng M* 49:764 Ag '15
- Soup kitchens**
- World's largest soup kitchen. *Sci Am* 112:329 Ap 3 '15
- South**
- Industries and resources**
- Industrial resources and opportunities of the South. A. D. Little. *J Ind & Eng Chem* 7:373-9 My '15; *Same cond. Met & Chem Eng* 13:281-2 My '15
- Iron, steel and coal in Dixie. H. S. Chamberlain. *Iron Tr R* 56:176-8+ Ja 21 '15
- South Africa**
- Commerce**
- American pipe and fittings in South Africa. *Iron Age* 95:1230-1 N 25 '15
- South America**
- South America as a field for American engineers. B. Willis. *Eng Rec* 70:620 D 5 '14
- See also Latin America*
- Commerce**
- Careful and intelligent cultivation necessary for extension of our commerce. C. Townley. *Elec W* 65:1136-7 My 1 '15
- Commercial opportunities in Latin America. H. H. Darville. *Il Metal Work* 83:553-6 Ap 9 '15
- Consular recommendations on South American trade. U S Bur For & Dom Com misc ser 20:1-28 '15
- Electrical markets in Brazil. H. N. Douthitt. *Elec W* 65:1488-9, 1593 Ja 5, 19 '15
- How to sell to Latin America. A. Del Mar. *Il Eng M* 50:341-56 D '15
- Machinery trade with South America. J. A. Massel. *Iron Age* 96:1128-9 N 11 '15

South America—Commerce—Continued

- South American business and America's opportunity. W. T. Taylor. Elec W 65:205 Ja 23 '15
 South American market for jewelry and silverware. U S Sp Cons Rep 70:1-28 '15
 South American market for soap. U S Sp Cons Rep 66:1-16 '15
 South American markets for machine tools. B. O. Hough. Mach 21:545-5 Mr '15
 South American trade conditions. R. G. Betts. Mach 21:502 F '15
 Trade opportunities in South America. Elec W 64:1172-3 D 12 '14
 West coast business. M. R. Lamb. II Eng & Min J 99:433-7 Mr 6 '15

Industries and resources

- Coal fields of South America. W. G. Burroughs. map Colliery 35:552-3, 643-4; 36:30-1, 153-5 My, J1-Ag, O '15
 Fuel conditions in South America. J. W. Hardy. Ry Age 53:1056-7 My 21 '15
 South America in 1914; mining industry. maps Eng & Min J 99:125-30 Ja 9 '15

South Dakota

See also Mines and mineral resources—South Dakota

South Orange, New Jersey**Water supply**

- Design features of the new water works at South Orange, N. J. II Eng & Contr 43:519-20 Je 9 '15

Southampton, Long Island**Parrish museum**

- Parrish museum, Southampton, Long Island. C. C. May. II plans Arch Rec 38:524-39 N '15

Southern California Edison company

- Annual report, 1914. Elec W 65:1032 Ap 24 '15

Southern Pacific railroad

- Contact system of the Southern Pacific company Portland division. F. Lebenbaum. II diags map Am Inst E E Pro 34:1295-1308 Je '15; Abstract. Elec Ry J 46:57-8 J1 10 '15

- How a railway helps the farmer to produce bigger and better crops. H. A. Hinshaw. Elec Ry J 46:559 S 18 '15

- Mr. Kruttschnitt testifies in dissolution suit. Ry R 56:344-5 Mr 13 '15

- Railroad built around burning tunnel in three weeks. II Eng Rec 71:797 Je 26 '15

- Thirty-first annual report. map Ry Age 59: 789-90, 889-42 O 29 '15

Southern railway company

- New terminal for the Southern at Birmingham, Ala. II diags Ry Age 59:743-6 O 22 '15

- Twenty-first annual report. map Ry Age 59: 723-4, 781-4 O 22 '15

Southern textile association

- Meeting at Greenville, S. C. Textile World 50:157-65 N '15

Southwark-Harris oil engine. See Diesel engines**Southwest**

- Resources and possibilities of chemical industry in the Southwest. E. Baruch. Met & Chem Eng 13:604-8 S 15 '15

Southwestern electrical and gas association

- 11th annual convention, Galveston, Tex., May 19-22. Am Gas Light J 102:375, 378-9 Je 14 '15

- 11th annual convention, Galveston, Tex., May 19-22. Elec Ry J 45:1025-30 My 29 '15

- 11th annual convention, Galveston, Tex., May 19-22. Elec R & W Elec'n 66:996-8 My 29 '15

- 11th annual convention, Galveston, Tex., May 19-22. Elec W 65:1435-7 My 29 '15

Soy beans

- Carbohydrates and the enzymes of the soy bean. J. P. Street and E. M. Bailey. J Ind & Eng Chem 7:853-8 O '15

- Studies on enzyme action: the lipase of soy beans. K. G. Falk. Am Chem Soc J 37:649-53 Mr '15

Spacing tables

- Spacing table in the structural shop: equipment in Fort Pitt bridge works. G. P. Thomas. II Iron Age 95:139-41 Ja 14 '15

Spain**Industries and resources**

- Spanish potash deposits. Eng & Min J 100: 202 Ag 14 '15

Navy

- First Spanish submarine. Sci Am S 80:229 O 9 '15

Spanish America. See Latin America.**Spark plugs**

- Electrical equipment of automobiles. P. M. Heldt. diags Horseless Age 34:918-20 D 23 '14

- Spark-plug ignition systems. A. H. Israel. diags Power 41:258-60 F 23 '15

- Testing plant for spark plugs. II Automobile 31:1075 D 10 '14

Specific gravity

- Formulas for specific gravity, etc., of alloys. W. L. Tryon. Foundry 43:222a Je '15

- Pulp constants, with tables to facilitate tonnage calculations for pulps of all usual solution and dry slimes specific gravities. G. H. Clevenger, H. W. Young and T. N. Turner. Eng & Min J 98:1079-94 D 19 '14

- Specific gravity—its determination for tars, oils and pitches. J. M. Weiss. II J Ind & Eng Chem 7:21-4 Ja '15

See also Hydrometers**Specific heat**

- Absolute zero. S. Dushman. Gen Elec R 18: 239-43 Ap '15

- Specific heat and heat of fusion of ice. H. C. Dickinson and N. S. Osborne. diags U S Bur Stand Bul 12:49-81 O 28 '15; Abstracts. J Fr Inst 179:489-91 Ap '15; Power 41:565 Ap 27 '15; Am Soc M E J 37:294-5 My '15

- Specific heat of copper in the interval 0° to 50° C. D. E. Harper. II U S Bur Stand Bul 11:259-318 Mr 1 '15

- Specific heat of superheated steam at pressures from 8 to 20 atmospheres, and from temperature of saturation to 380 deg. cent.; abstract. O. Knoblauch and A. Winkhaus. Am Soc M E J 37:409-10 J1 '15

Specifications

- Alternate specifications for public work are legal. D. T. Pierce. Eng N 74:1048-50 N 25 '15

- Elements of specifications. M. B. Smith. Power 42:770-3 N 30 '15

- Fifty-three standards considered by American society for testing materials. Iron Tr R 57:37-48 J1 '15

- Relation of tests and specifications to the uses of materials. B. Brooks. Munic J 39: 810-11 N 25 '15

- Specification fends. Eng Rec 70:677-8 D 19 '14

- Writing specifications. D. S. Kimball. Power 42:266-7 Ag 24 '15

- See also Standards, Engineering; also subdivision Specifications under names of subjects, e. g. Bridges—Specifications; Coal—Specifications; Rails—Specifications; Steel—Specifications

Spectacles

- Glasses for protecting the eyes from infra-red rays. W. W. Coblenz. J Fr Inst 178: 579-80 My '15

- Report on colored glasses for eye protection. F. W. King. Iron Tr R 56:727 Ap 8 '15

- Shooting spectacles. Dr. Schanz. Sci Am 112: 629 Je 26 '15

See also Goggles**Spectrometers**

- X-ray spectrometer for the study of the properties of crystals. diag Sci Am S 79:19 Ja 9 '15

Spectrum

- Controlling infra-red emission. W. W. Coblenz. Elec W 66:1155-6 N 20 '15

- See also Infra-red rays; Radioactivity; Ultra-violet rays

Spectrum analysis

- Interference measurements of wave lengths in the iron spectrum. (2851-3701). K. Burns and W. F. Meggers. U S Bur Stand Bul 12: 179-205 N 8 '15; Abstract. J Fr Inst 180:375-6 S '15

Speech*See also* Phonetics**Speed shifter**Speed shifter of new type. *il* Iron Tr R 57:272 Ag 5 '15**Speed variation**New type of speed changing gear. *il* Iron Age 86:244 J1 28 '15Quick speed changes in new drill press. *il* Automobile 32:422 Mr 4 '15Records of speed variation. F. B. Steele. *il* Elec W 65:1687-8 Je 26 '15Solution of speed reduction. *diag* Mach 21:746-7 My '15Turbine speed reduction gear. *il* *diags* Engineer 120:316-16 O 1 '15Turbo-reduction gear. *il* *diag* Power 41:887 Je 29 '15**Speedometers**Speedometers and other indicating instruments at the show. H. H. Brown. *il* Horseless Age 35:22-3 Ja 6 '15Van Sicken uses air principle. *il* Automobile 33:287 Ag 12 '15**Speedways**Adapting an old racetrack to automobile racing. *il* Eng N 74:603-4 S 23 '15America's first concrete speedway. Minneapolis. *diag* Automobile 33:434 S 2 '15Building a two-mile speedway in six weeks. *il* Eng Rec 71:636-7 My 29 '15; Abstract (Wood-floor speedway). Eng M 49:934 S '15Building Twin City concrete automobile race-track. *il* *diag* Eng N 74:806-8 O 21 '15

Concrete-paved automobile racetrack, St. Paul, Minn. Eng N 74:233 J1 29 '15

Diagrammatic plan of the Sheepshead Bay speedway. Horseless Age 35:243 S 1 '15

Motor race-track at Chicago. *il* *diags* plan Eng N 74:488-91 S 9 '15New York speedway. *il* map Automobile 32:664-5 Ap 15 '15Rush construction at Sheepshead Bay. *il* Automobile 32:1067 Je 17 '15Sheepshead Bay motor racetrack. *il* *diags* Eng N 74:337-40 Ag 19 '15Sheepshead Bay speedway officially announced. *il* Horseless Age 35:487-8 Ap 14 '15Sheepshead Bay two-mile speedway scientifically designed for high velocities. *il* *diags* Eng Rec 71:739-40 Je 12 '15Test automobiles in Detroit on artificial hill. *il* Eng Rec 72:350 S 18 '15

\$250,000 speedway for Louisville. Automobile 32:354-5 Ag 19 '15

2-mile board speedway for Chicago. plan Automobile 31:1137 D 17 '14

Spelling

Orthography in geography and biography. F. H. Teall. Inland Ptr 54:485-7 Ja '15

Simplified spelling in business. Munic Eng 49:66 Ag '15

Value of rules for spelling. F. H. Teall. Inland Ptr 55:190-1 My '15

See also Compound words**Spelter. See** Zinc**Spencer, Herbert, 1820-1903**

Herbert Spencer, engineer. El. El. Thum. Eng N 73:802-4 Ap 29 '15

Sperry, Elmer Ambrose; 1860-

Sketch. por Eng M 50:312-13 N '15

SphaeromaMarine wood borers; little known crustaceans of destructive habits. C. H. Truesdale. *il* Sci Am S 78:356-7 D 5 '14**Sphere gap**

Sphere gap as a means of measuring high voltage. F. W. Peek, Jr. Am Inst E E Pro 33:889-914 Je '14; Discussion. 34:103-24 Ja '15

Sphere gap discharge voltages at high frequencies. J. C. Clark and H. J. Ryan. *il* Am Inst E E Pro 33:937-51 Je '14; Abstract and discussion. Elec R & W Elec'n 65:28-9 J1 4 '14; Discussion. Am Inst E E Pro 34:103-24, 452-4 Ja, Mr '15**Spiders**Spinning of a web. F. Cuttriss. *il* Sci Am S 79:136-7 F 27 '15**Spiegeleisen**

Operation of spiegeleisen blast furnaces. H. Thaler. Iron Age 94:1398-9 D 17 '14

Spikes (railroad)Results with five years' use of screw spikes on the D. L. & W. R. R. G. J. Ray. *il* Ry R 56:424-30 Mr 27 '15; Same cond. Ry Age 58:839-42 Ap 16 '15; Same cond. Eng & Contr 43:450-2 My 19 '15; Excerpts. Eng Rec 71:430-1 Ap 8 '15; Abstract. Eng M 49:276-9 My '15; Summary. Eng N 73:690-1 Ap 8 '15

Screw spikes. Ry Age 58:833-4 Ap 16 '15

Spillways

Run-off formulas for small spillways compared. F. M. Aguirre. Eng Rec 72:640 N 20 '15

Siphon spillway for power dam. T. K. Mathewson. *diag* Eng N 74:269 Ag 5 '15**Spindles**Oilless spindle. *diags* Textile World 50:198-9 N '15**Spinning**

Spinning fine yarn. Textile World 48:389-91 Ja '15

See also Cotton spinning; Textile industry and fabrics; Yarn**Spinning machinery**Improved thread guide. *il* Textile World 49:331-2 Je '15Roving clamp for spinning machines. *diag* Textile World 48:353 D '14Tension regulator for spinning machines. *il* Textile World 49:523-5 Ag '15Thread board for spinning machines. *diag* plan Textile World 48:503-4 F '15Wet spinning machine. *diag* Textile World 49:128 Ap '15**Spires**Church towers, steeples, and spires of Sir Christopher Wren. R. R. Phillips. *il* Brickb 24:228-32 S '15**Spitzbergen**

Arctic coal; preliminary success of American interests in Spitzbergen. M. E. Berr. Eng M 49:760-1 Ag '15

Coal mining in Spitzbergen. Eng & Min J 100:672-3 O 23 '15

Splice bars. See Rail joints**Splicers. See** Electric cables; Trolley wire splicers**Spokane, Washington****Railroads**St. Paul and Oregon-Washington joint terminals in Spokane. *il* plans Ry Age 58:85-8 Ja '15Spokane terminal improvement involved variety of engineering construction. *il* plan Eng Rec 71:234-6 F 20 '15**Sponge iron**

Leaching experiments on the Ajo ores. S. Crossdale. Am Inst Min E Bul 92:1919-24 Ag '14; Excerpt (Manufacture of sponge iron as a precipitant for copper). Eng & Min J 99:326-8 F 13 '15

Sponging and shrinking machineSponging and shrinking machine. *diags* Textile World 48:426-7 Ja '15**Spontaneous combustion**

Absorption of oxygen by coal. W. F. Winnill. Colliery 38:147-53 O '15

Land storage of bituminous coal; the ever present factor of spontaneous combustion; abstract. G. R. Crapo. Am Soc M E J 37:612 O '15

SpoolersSaco-Lowell spooler. *il* Textile World 49:689-91 S '15**Spouts**Making patterns for cone hopper and spout. *diags* Metal Work 84:112-13 J1 23 '15Patterns for intersecting conical spouts. *diags* Metal Work 83:627-9 Ap 30 '15**Sprague, Frank Julian, 1857-**

Sketch. por Eng M 50:206-7 N '15

Spreader cars. See Cars (spreader)**Spring banding machine**

Design. Ry Age (Mech ed) 89:478 S '15

Spring rigging. See Locomotives—Spring rigging

Springfield, Massachusetts

Public buildings

Public comfort station now under construction, at a cost of twenty-four thousand dollars, H. L. Sprague. *Il plan Munic J 38:218-19 F 18 '15*

Water supply

Springfield water-works. *Il Eng N 74:406-9, 443-5 Ag 26-S 2 '15*

Springfield, Ohio

Politics and government

Commission and city manager forms of government. H. H. Rumble, R. W. Featross and J. E. Burke. *Munic Eng 49:55-6 Ag '15*

Springs

Using volcanic steam for the production of electrical energy. *Il Sci Am 112:97-8 Ja 30 '15*

See also Mineral waters

Springs (mechanism)

Automatic spring forming machine. *Il Iron Age 96:929 O 21 '15*

Characteristics of plate springs. G. S. Chiles. *Il Ry Age (Mech ed) 89:161-3, 219-22, 340-3, 392-5 Ap-May, Jl-Ag '15*

Design of steel passenger equipment. V. W. Zilen. *Ry Age (Mech ed) 89:515-16 O '15*

Helical springs for street cars. *Elec Ry J 46:409-10 S 4 '15*

Master blacksmiths' convention; discussion of spring making and repairing. *Il Ry Age (Mech ed) 89:474-5 S '15*

Partial and total deflections of leaf springs en masse. D. Landau and A. Golden. *Horseless Age 35:104-7, 153-4, 447-9 Ja 20-27, Mr 31 '15*

Science in spring manufacture. A. L. Clayden. *Il Automobile 22:335-40 My 13 '15*

Spring forming and hardening machine. *Il Iron Age 95:1164-5 My 27 '15*

Universal elliptic spring forming machine. *diags Ry Age (Mech ed) 89:593 N '15*

Wire springs. E. R. Morrison. *diags Mach 21:558-60 Mr '15*

See also Automobiles—Springs; Locomotives—Springs; Watch springs

Springs, Automobile. See Automobiles—Springs

Sprinkler systems

Combined heating and sprinkler system for a factory building; Wheelock, Lovejoy & co., Cambridge, Mass. C. L. Hubbard. *Il plans Heat & Ven 12:13-17 O '15*

Sprinklers

Fire protection for the factory. *Il Ind Eng 15:90-4 S '15*

Spruce

Manufacture of ethyl alcohol from wood waste; the hydrolysis of white spruce. F. W. Kressmann. *J Ind & Eng Chem 7:920-2 N '15*

Square (instrument)

Roof framing with the steel square. D. P. Barry. *Bldg Age 37:45-6 O '15*

Roof framing with the steel square. *Il Bldg Age 37:45-6 N '15*

Story of the combination square. L. S. Starrett. *Mach 21:360 Ja '15*

Testing a square. G. A. Remacle. *diag Mach 22:81-2 S '15*

Stables

Concrete floors for stables. L. C. Wason. *Concrete Cem 6:42-3 Ja '15*

Construction of sanitary mangers in dairy barn at Troy, Pa. *Il diags Concrete Cem 6:104-6 F '15*

Frame barn of a northwestern farmer. *Il plan Bldg Age 37:25-6 Ap '15*

Heating and ventilating stables and garages. C. L. Hubbard. *diags Dom Eng 72:168-70 Ag 7 '15*

Round dairy barn of hollow tile. W. H. Frud-den. *Il plans Bldg Age 37:27-8 Je '15*

Sheet metal in farm buildings. *diags plan Metal Work 83:181-2+ Ja 29 '15*

Ventilation of dairy barns. J. L. Shawver. *Bldg Age 37:62 N '15*

Stacks. See Chimneys

Stadia

Design and construction features of the Palmer memorial stadium. Princeton, N. J. *Il diags plan Eng & Contr 48:472-5 My 26 '15*

Palmer memorial stadium at Princeton university. *Il diags plan Eng N 72:1184-7 D 10 '14*

San Diego's municipal stadium. F. A. Rhodes. *Il plan Eng N 74:577-80 S 23 '15*

Stadia measurements

Account of micrometers for measuring distances. J. Watt. *Eng N 73:471 Mr 11 '15*

Examples of stadia surveying and its broader uses with special reference to preliminary hydraulic surveys. W. B. Saunders. *Eng & Contr 43:570-2 Je 30 '15*

Long stadia sights. *Eng N 73:990-1 My 20 '15*

Stadiagraph

Ayerll stadiagraph. *diag Eng M 49:sup4 Ap '15*

Staff system. See Railroads—Signals

Stage lighting

Mobile color and stage lighting. B. Jones. *Il plan Elec W 66:245-9, 294-7, 346-9, 407-9, 454-6 Jl 31-Ag 28 '15*

Staging. See Scaffolding

Stairs. See Stairways

Stairways

Cleveland bases stairway regulations on studies. *Eng Rec 72:260 Ag 28 '15*

Construction of a platform stairway. *diags Bldg Age 37:33-5 Ja '15*

Disappearing stairway. C. A. Byers. *Il Bldg Age 37:53-4 Jl '15*

Modern schoolhouse. W. H. Kilham. *Il plans Brickb 24:39-42 F '15*

Stairways in houses of moderate cost. J. T. Fallon. *Il plans Brickb 24:111-14, 159-63, 193-6 My, Jl-Ag '15*

See also Railings

Stairways, Concrete

Architectural effects secured in Glens Falls arch bridge over Hudson river. *Il diags Eng Rec 72:574-6 N 6 '15*

Building reinforced-concrete steps without forms. R. C. Hardman. *diag Eng N 73:731 Ap 15 '15*

Stairways, Moving. See Moving stairways

Stamp mills

Improved form of cam for stamp mills. A. B. Foote. *diag Am Inst Min E Bul 96:2765-6 D '14; Same. Eng & Min J 98:1046 D 12 '14*

Notes on Homestake metallurgy; stamp milling; analysis of lost time; cost. A. J. Clark. *Il Am Inst Min E Bul 103:1382-7 Jl '15*

Stamp milling in 1914. H. A. Megraw. *Eng & Min J 99:397-8 Ja 9 '15*

See also Crushing machinery; Gold milling; Metallurgy; Ore treatment

Standard documents. W. S. Parker. *Am Inst Arch J 3:300-3, 346-51, 388-92 Jl-S '15*

Standards. See Units

Standards, Bureau of. See United States—Standards, Bureau of

Standards, Electric. See Electric standards

Standards, Engineering

Engineering standards committee annual meeting. *Engineer 120:116, 118 Jl 30 '15*

Fifty-three standards considered by American society for testing materials. *Iron Tr R 57:37-48 Jl 1 '15*

1915 U. S. standard schedule of flanged fittings and flanges. *Eng & Min J 99:1121 Je 26 '15; Same. Power 41:722 Je 8 '15*

Relation of standards to the development of engineering. W. S. Stratton. *Am Soc M E J 37:38-40 Ja '15*

Results of factory standardization. C. B. Auel. *Il diags Iron Tr R 57:125-30 Jl 15 '15; Abstracts. Iron Age 94:1280-2 D 3 '14; Ind Eng 14:458-60 D '14; Am Soc M E J 37:13-15 Ja '15; Discussion. 37:15-16 Ja '15*

See also Electric standards; also subdivision Standards under names of subjects, e. g. Automobiles—Standards; Gas—Standards; Metallurgy—Standards; Railroads—Standards

Standpipes

Coating of standpipes at Reading, Mass., and Baltimore, Md. F. C. Perkins. *Il Eng & Contr* 44:32 J1 14 '15

Design and construction of the new standpipe of the Youngstown, Ohio, water works. N. E. Hawkins. *Il diag Eng & Contr* 43:287-8 Mr 17 '15

Fire prevention. E. R. Hardy. *Arch & Bldg* 47:28-9 Ja '15

Grouting or cushioning stand pipe bases; abstracts. C. W. Sherman. *Munic J* 89:812 N 25 '15; *Eng & Contr* 44:410-11 N 24 '15

Mercury column alarm for standpipes successfully employed at Ripon, Wis. W. E. Haseltine. *diag Eng & Contr* 43:550-1 Je 23 '15

See also Surge tanks; Water towers

Standpipes, Concrete

Concrete standpipes; information concerning more than forty erected in the United States. *Il Munic J* 89:107-10 J1 22 '15

Design, construction and cost of reinforced concrete standpipes. W. G. Kirchoffer. *Il Eng & Contr* 43:331-3 Ap 14 '15

Design, construction and durability of reinforced concrete standpipes. H. B. Andrews and others. *Eng & Contr* 44:47-9 J1 21 '15

Design features and cost of gravity water works at Mellen, Wis. W. G. Kirchoffer. *Il diags Eng & Contr* 44:169-60 S 1 '15

Design of reinforced-concrete standpipes. H. W. Alrich; L. C. Wason. *Il Eng N* 73:949-50 My 13 '15

Discussion of reinforced-concrete standpipes. *Eng N* 73:554-5 Mr 18 '15

History of Attleboro, Mass., standpipe of reinforced concrete. *Il Eng N* 73:816-18 Ap 29 '15

Method of grouting leaky bottom of concrete standpipe, Greenfield, Mass. *Eng & Contr* 44:78 J1 28 '15

Proper design and construction of concrete standpipes. L. J. Mensch. *Eng N* 73:836-7 Ap 29 '15

Serviceableness of reinforced concrete standpipes. *Eng & Contr* 43:330 Ap 14 '15

Watertightness of high concrete standpipes. *Eng N* 73:833-4 Ap 29 '15

See also Water towers, Concrete

Starch

Modification of starch by gaseous hydrochloric acid. F. C. Frary and A. C. Dennis. *J Ind & Eng Chem* 7:314-16 Mr '15

Starch-forming enzyme from malt: its action on the hemicelluloses and its commercial application to brewing. C. E. Davis. *Il J Ind & Eng Chem* 7:115-18 F '15

Testing starch. *Textile World* 49:664-5 S '15

Stars

Comparison of stellar radiometers and radiometric measurement on 110 stars. W. W. Coblentz. *Il diags U S Bur Stand Bul* 11:613-56 My 27 '15

Evolution of the elements; the evidence of the stars. J. W. N. Sullivan. *Sci Am S* 79:282 My 1 '15

Machine that measures the heat of stars. *Il Sci Am* 118:49 J1 10 '15

Measurement of the distances of the stars. F. W. Dyson. *Sci Am S* 80:162-3, 182 S 11-18 '15

Starters, Electric. See Electric starters**Starting resistance. See Electric motors—Starting resistance****State aid to commerce. See Great Britain—Board of trade; United States—Federal trade commission****State aid to science. See Science and state****State bridges. See Highway administration****State engineers**

State civil and mechanical engineer and architect. *Eng N* 74:879 Ag 19 '15

State geologists

State geological and mining officials. *Eng & Min J* 99:104 Ja 9 '15

State rights

Right of the states which is often overlooked; constitutional duty of federal government to protect from harmful regulation of commerce by sister states. A. P. Thom. *Ry Age* 59:49-53 J1 9 '15

See also Water power—United States

State technical bureaus. See Engineering bureaus**Stationery**

Railway storekeepers' association; committee report. *Ry Age* 58:1044-5 My 21 '15

Stationery trade

British India. U S Sp Cons Rep 73:312-17 '15

Paper and stationery trade of the world. G. Dawe. U S Sp Cons Rep 73:1-458 '15

Stations, Railroad. See Railroads—Stations**Statistics**

Graphs, charts and statistics as aids to administration. E. C. Stothart. *Elec Ry J* 46:665-7 O 2 '15

How to use statistics in management. F. G. Coburn. *Eng M* 49:717-23 Ag '15

Joint committee on standards for graphic presentation; preliminary report. *Am Soc M E J* 37:vii-ix Ag '15; Same. *Am Inst Min E Bul* 106:ix-xii O '15; Same. *J Ind & Eng Chem* 7:894-5 O '15; Same cond. *Eng Rec* 72:633 N 20 '15

Practical applications of the principles of statistics. C. S. Ruffner. *Assn Eng Soc J* 53:264-80 D '14

See also Census; also subdivision Statistics under names of special subjects, e. g. Railroads—Statistics

Steam

Diagram for throttling calorimeter. R. S. Bayard. *Power* 42:618 N 2 '15

Heat losses in steam transmission; abstract. W. L. Cathcart. *Am Soc M E J* 37:611 O '15

How to make steam from slag. W. L. Johnson. *dings Iron Tr R* 55:1139-40 D 17 '14

Steam disinfection for sewage on common carriers. *diag Eng Rec* 71:43 Ja 9 '15; Same (Sewage treatment on trains and boats). *Eng M* 48:917-18 Mr '15

Steam versus air for power tools. *Metal Work* 82:796+ D 18 '14

Thermal properties of steam. *J Ind & Eng Chem* 7:74-5 Ja '15

See also Boilers; Condensers (steam); Exhaust steam; Steam engines; Steam flow; Steam heating; Steam pipes; Steam turbines; Steamboats; Superheated steam; Thermodynamics

Cost

Cost of steam. C. W. Howard. *Power* 41:273 F 23 '15

Cost of steam. H. L. Strong. *Power* 41:183 Ja 26 '15

Simplified method of determining cost of coal per 1000 lb. of steam; chart. W. H. Schott. *Elec W* 66:764-6 O 2 '15; Same. *Power* 42:456-8 S 28 '15; Same. *Eng & Min J* 100:636-8 O 16 '15

Steam costs in 6600-hp. boiler plant. F. G. Philo. *Power* 41:368-9 Mr 15 '15

Steam, Exhaust. See Exhaust steam**Steam, Natural**

Using volcanic steam for the production of electrical energy. *Il Sci Am* 112:97-8 Ja 30 '15

Steam, Superheated. See Superheated steam**Steam accumulators**

Step-bearing accumulator for a vertical turbine. W. R. Bankhead. *Il diag Power* 41:265-6 F 23 '15

Steam automobiles. See Automobiles, Steam**Steam boilers. See Boilers; Steam engines****Steam buses. See Motor buses, Steam****Steam cookers**

Low pressure steam for cooking apparatus. D. S. Boyden. *diags Metal Work* 84:689-90 N 19 '15

Test of low pressure steam vegetable cooker. *Am Soc Heat & V E* 20:421-4 '14

Steam engineering

Draining high-pressure steam piping. C: L. Hubbard. *diag* Power 42:613-15 N 2 '15
Explosives of the engineer's department. *Int Marine Eng* 20:412-13 S '15
See also Boiler plants; Boilers; Locomotives; Marine engineering; Steam engines; Steam plants; Steam turbines; Steamboats; Stokers, Mechanical; Superheated steam

Examinations

Examination questions. Power 41:401 Mr 23 '15
Examining the examiner. Power 41:156-7 F 2 '15

Steam engineers

Hearing on Massachusetts licensing bill. Power 41:418-19 Mr 23 '15

Steam engines

Auxiliary exhaust valves on uniflow engines. A. D. Skinner. *diag* Power 41:448-50 Mr 30 '15
Auxiliary exhaust valves on uniflow engines. R. Trautschold. Power 42:59-60 Jl 13 '15
Auxiliary exhaust valves on uniflow engines. W. Turnwald. Power 41:515-16 Ap 13 '15
Comparative economy of discharging steam from evaporator into hot well, condenser or low pressure receiver. H. A. Everett. *Int Marine Eng* 20:268-9 Je '15
Compensators for Corliss governors. C: L. Ware. *diag* Power 42:93-4 Jl 20 '15
Difference in the compression curve on indicator diagrams from different engines. Power 42:540-1 O 19 '15
Engine for Karpen plant. L. H. Morrison; T. Wilson. Power 41:27-9 Ja 5 '15
First Stumpf una-flow engine built in America. *Il* Power 40:701-4 N 17 '14; Same cond. *Eng M* 48:580-2 Ja '15
First Stumpf una-flow engine built in America. Sibley J 29:111-12 Ja '15; Same. *Sci Am S* 79:383 F 6 '15
First uniflow plant on Pacific coast, Hotel Rosslyn, Los Angeles. *Il* plan Power 41:748-50 Je 1 '15
Forty years' advance in steam power units. *Il* Power 41:302-4 Mr 2 '15
High-pressure unaflow engine. R. Cramer. Sibley J 30:33-5, 64-5 O-N '15
Historical note on Reynolds girder frame Corliss engine. *Il* Mach 21:492 F '15
Influence of indicator connecting pipes. T: W. Morley. *diag* Power 41:622-3 My 4 '15
Internal-combustion vs. the steam engine. Power 42:513-14 O 12 '15
Life work of Centennial engine; the mammoth Corliss exhibited at the Centennial exposition in 1876. S. H. Viall. *Il* plan Power 42:52-4 Jl 13 '15
Outline specification of reciprocating engine. M. B. Smith. Power 42:771 N 30 '15
Pipes for steam engines. F: W. Salmon. Power 41:38 Ja 19 '15
Principles of engine design. *Engineer* 119:182 F 19 '15
Recent development in the construction of the uniflow engine. J. Stumpf. *Il* *diag* Power 41:896-400 Mr 23 '15
Review of paper by F. Foster. *Engineer* 119:182 F 12 '15
Setting the valves of a four-valve engine. H. Wiegand. Power 41:266-7 F 23 '15
Similarity in mechanical design: abstract. F. Foster. *Engineer* 119:117 Ja 29 '15
Steady flow of steam through a nozzle or throttle. H. L. Callendar. *Am Soc M E J* 37:241-2 Ap '15
Steam-engine cycles. Power 41:210-11 F 9 '15
S.-T. uniflow engine. A. A. Whitney. Power 42:728 N 23 '15
S. T. uniflow engine. *diag* Power 42:608-9 N 2 '15
Superheat for Corliss engines. E. R. Pearce. Power 40:386 D 22 '14
Turbines vs. engines in units of small capacities. J. S. Barstow. *Am Soc M E J* 37:511-15 S '15; Same. *Sci Am S* 80:366-8 D 4 '15; Same cond. Power 42:278-80 Ag 24 '15; Excerpts. *Eng & Min J* 100:392-3 S 4 '15
Two new Nordberg engines. *Il* *diag* Power 41:118-20 Ja 26 '15
Uniflow or una-flow. Power 41:201-2 F 9 '15
Uniflow steam engine. *diag* Power 41:570-1 Ap 27 '15; Same. *Sci Am S* 80:76 Jl 31 '15

Uniflow undertype engine. *diag* plan (supp) *Engineer* 118:530 D 4 '14
Use of steam from the receiver of a compound engine. A. Beaurienne. *Am Soc Heat & V E* 19:228-43 '13
What causes the high efficiency of locomotives? E. R. Pearce. Power 41:633 My 11 '15; Same (Superheated steam engines). *Sci Am S* 80:304 N 6 '15

See also Blowers; Condensers (steam); Flywheels; Governors (machinery); Heat engines; Indicators; Locomotives; Locomotives; Marine engines; Safety valves; Steam plants; Steam turbines; Steamboats; Tractors; Valves

Safety devices and measures

How an operating engineer can prevent accidents. *diag Elec W* 66:589-90 S 11 '15

Specifications

Engine specifications. J. C. Hawkins. Power 42:691-2 N 16 '15

Testing

Acceptance test of high-speed poppet-valve engine. *Il* *diag* Power 42:333-3 S 7 '15
Blooming-mill engine test. *Iron Age* 94:1278-9 D 3 '14
Results of test of poppet-valve engine. *Il* *Elec W* 66:942 O 23 '15
Test of large reversing engine and rolling mill. K. Nibecker. *Il* *diag* *Eng Soc W Pa* 30:533-65 Jl '14; Abstract. *Am Soc M E J* 37:55-6 Ja '15; Discussion. *Eng Soc W Pa* 30:565-640, 804-8 Jl, N '14
Tests of engine of new design. *Il* *Iron Tr R* 55:1047-9 D 3 '14

Steam fitting. See Steam pipes**Steam flow**

Flow of air and steam through orifices. A. L. Westcott. *diag* Power 42:515-16 O 12 '15
Flow of steam in pipes; two new tables. W. Kent. *Ind Eng* 15:51-2 F '15
Flow of steam in pipes; with discussion. W. F. Verner. *Am Soc Heat & V E* 20:151-85 '14
Heat losses and economical design of steam piping. A. L. Johnston, jr. *Eng M* 48:694-703 F '15
Horsepower constants for G. E. type F steam-flow meter. H. E. Collins. Power 41:778-6 Je 8 '15
Will Quizz asks about the shape of steam nozzles. Power 41:56 Ja 12 '15

Steam gages

Check valve used to protect a steam gage and prevent indicating errors. *diag Elec W* 66:416 Ag 21 '15
Clips for securing data tags to steam gages and safety valves. C. L. Dickert. *diag Ry Age (Mech ed)* 89:131-2 Mr '15
Operation of a steam gage. *Int Marine Eng* 20:361 Ag '15

Steam heating

Adding new radiation to old heating plant. plans *Dom Eng* 72:344-5 S 18 '15
Air return line system pro and con. *Metal Work* 84:320-1 S 3 '15
Cause of drop in pressure in pipes. I. N. Evans. *Heat & Ven* 12:35-6 N '15
Change in plan of heating system. plans *Dom Eng* 73:12-14 O 2 '15
Church warmed by cast-iron sectional boiler. *Il* plans *Metal Work* 83:98-100 Ja 8 '15
Connecting high pressure boiler to cast iron radiators and taking care of the return. *Dom Eng* 73:109-10 O 23 '15
Core sand in the heating system. *Locomotive* 30:110-12 O '14
Crude oil as fuel in heating systems. H. S. Haley. *diag* *Dom Eng* 70:104-6, 139-41 Ja 23-30 '15
Data on overhead steam heating. I. N. Evans. *Heat & Ven* 12:41-2 S '15
Developments in steam heating. J. Hoffman. *diag* *Metal Work* 84:517-18 O 22 '15
Does it take a greater amount of heat initially to heat with live steam than with exhaust steam? I. N. Evans. *Heat & Ven* 12:39-43 Ja '15
Economical design of low-pressure steam mains. A. L. Johnston, jr. *Eng M* 49:28-34 Ap '15

Steam heating—Continued

- Exhaust steam versus live steam for heating. Power 42:159-60 Ag 3 '15
- Exhaust vs. live steam heating. A. P. Hyde; H. Allen. Power 42:762-3 N 30 '15
- Expense of operating heating and ventilating plants; with discussion. H. M. Hart. Am Soc Heat & V E 19:309-27 '13
- False-water-line arrangement for steam-heating systems. diag Elec W 66:1208 N 27 '15
- Features of economical church heating plant. II plans Metal Work 83:405-8 Mr 19 '15
- Gifford automatic vacuum system of steam heating. diag Heat & Ven 12:53 Ag '15
- Heating a house. plans Metal Work 84:591 N 5 '15
- Heating a two-story brick schoolhouse: description of a gravity steam system. II plans Bldg Age 37:53-5 Ja '15
- Heating and plumbing in paint factory. II Metal Work 84:272-3 Ag 37 '15
- Heating and ventilating plant for the Missouri state capitol; reversible system of air supply for house and senate chambers. II diag plans Heat & Ven 12:13-21 My '15
- Heating equipment for large greenhouse. G. W. Loeber. II diag Metal Work 83:66-70 Ja 1 '15
- Heating equipment in Loomis institute. Windsor, Conn. II plan Metal Work 83:354-5 Mr 5 '15
- Heating equipment of modern steam laundry. II plan Metal Work 84:515-16 O 22 '15
- Heating system for building and bakery. plans Dom Eng 73:209 N 13 '15
- Heating system with defective circulation. plans Dom Eng 71:38-9 Ap 10 '15
- Heating value of exhaust steam. D. M. Myers. Eng M 49:712-17 Ag '15
- Heating value of exhaust steam. D. M. Myers. Sch Mines Q 36:40-7 N '14
- How to run piping for steam radiators. W. H. Wakeman. diag Dom Eng 71:63 Ap 17 '15
- Inexact statements in manufacturers' catalogues. Heat & Ven 12:53-5 F '15
- Kelmac vapor heating. diag Heat & Ven 13:57 Ag '15
- Lift fittings and lift pockets in vacuum steam heating work. T. W. Reynolds. diag Heat & Ven 12:48-9 Ja '15
- Making quick repairs on heating plants. W. H. Wakeman. diag Dom Eng 71:155-6 My 8 '15
- Merits of vapor systems for house heating. N. W. Taplin. Metal Work 83:475-6 Mr 26 '15
- Methods of dripping steam mains. diag Heat & Ven 11:35-7 D '14
- Miter coils for exhaust steam heating. A. G. Solomon. diag Power 42:506 O 12 '15
- Miter coils for steam heating. T. B. Hyde. Power 42:633-4 N 2 '15
- Modern practice in heating and ventilation. A. G. King. II diag Dom Eng 68:124-6; 69:354-5; 70:2-4, 268-9, 366-8; 71:2-3, 92-3, 122-4, 276-8; 72:2-4, 102-4, 310-12 Ag 1, D 19 '14, Ja 2, F 27, Mr 20, Ap 3, 24, My 15, Je 5, Ji 3, 24, S 11 '15
- Office-building service data. W. R. Metz. Power 42:125-6 Ji 27 '15
- Ordinary wastes in the power plant. C. L. Hubbard. plans Eng M 49:809-17 S '15
- Overcoming back pressure in heating systems. I. N. Evans. Heat & Ven 12:44-6 O '15
- Pipe sizes; tables. Heat & Ven 11:39 D '14
- Pressure survey study constituting a report on the comparative use of exhaust and live steam for heating. C. C. Wilcox. diag plans Heat & Ven 12:23-32 Ag '15; Abstract. Elec R & W Elec'n 66:1120 Je 12 '15
- Problem in cooling condensation. T. Tait. Dom Eng 70:335-6 Mr 13 '15
- Problems in power-plant design. (Engineers' study course) C. L. Hubbard. plans Power 40:894-7; 41:66-8 D 22 '14, Ja 12 '15
- Question concerning return of condensation. diag Dom Eng 73:238 N 20 '15
- Question in heating engineering; piping. T. Tait. plan Dom Eng 70:205-6 F 13 '15
- Standard details of heating and ventilating work. F. G. McCann. diag plans Metal Work 81:31-3, 125-6, 234-5, 302-3, 353-4, 421-4, 494, 511+, 606-7; 82:273-4, 460, 706-7; 83:149-50, 281-2 Ja 2, 16, F 6, 20, Mr 6, 20, Ap 3-10, My 1, S 4, O 2, N 27 '14, Ja 22, F 19 '15
- Suburban residence heated by vapor system; gas fuel for boiler. II plans Metal Work 83:385-7 Mr 12 '15
- Swimming pools; construction, mechanical installation, water supply, heating the water, various types of installations. A. G. King. diag Dom Eng 69:254-6, 320; 70:34-5, 101-2 N 28, D 12 '14, Ja 9, 23 '15
- Time element in heating a building. Heat & Ven 12:45-6 Mr '15
- Twenty-five years ago. S. A. Jellett. Dom Eng 69:410 D 26 '14
- Unsatisfactory heating system. diag plans Dom Eng 69:328-9; 71:318-20 D 12 '14, My 22 '15
- Vacuum heating systems. W. L. Durand. Power 41:605 My 4 '15
- Vacuum heating without thermostats. D. N. Crosthwaite, jr.; W. L. Durand. Power 41:346 Mr 9 '15
- Vacuum system in an apartment building. II plans Metal Work 84:114-15 Ji 23 '15
- Vapor system in house heating. II diag plans Bldg Age 37:51-4 F '15
- See also* Heating; Hot water heating; Radiators; Steam flow; Steam pipes
- Steam meters**
- Curnon steam meter. II diag Power 41:545-6 Ap 20 '15
- District heating. S. M. Bushnell and F. B. Orr. II diag Heat & Ven 12:32-7 F; 36-41 Mr; 37-41 Ap '15
- Horsepower constants for G. E. type of F steamflow meter. H. E. Collins. Power 41:773-6 Je 8 '15
- Recording power plant operations. J. C. Smallwood. II diag Eng M 49:818-36 S '15
- Simplex condensation meter. II Power 41:569 Ap 27 '15
- Steam meters. II Elec W 65:871-2 Ap 3 '15
- Steam motor buses. *See* Motor buses, Steam
- Steam navigation**
- See also* Boilers, Marine; Steam engines; Steamboats
- Steam pipe coverings**
- Efficiency of commercial pipe coverings. L. B. McMillan and H. S. Rekersdres. II Metal Work 82:794-6 D 18 '14
- Producing magnesite pipe and boiler covering. F. W. Bartlett. Power 42:426-7 S 21 '15
- Steam pipes**
- Blowing out steam lines. W. Hirst. diag Power 42:161-3 Ag 3 '15
- Details of heating and ventilating work. F. G. McCann. diag Metal Work 84:551 O 29 '15
- Draining high-pressure steam piping. C. L. Hubbard. diag Power 42:613-15 N 2 '15
- Economical design of low-pressure steam mains. A. L. Johnston, jr. Eng M 49:28-34 Ap '15
- Elasticity and endurance of steam pipes. C. E. Stromeyer. Power 41:278-81 F 23 '15
- Five hundred kilowatts from exhaust of hoisting engine. T. Wilson. II diag plan Power 42:143-6 Ag 3 '15
- Flow of steam in pipes; two new tables. W. Kent. Ind Eng 15:51-2 F '15
- Flow of steam in pipes; with discussion. W. F. Verner. Am Soc Heat & V E 20:151-85 '14
- Heat losses and economical design of steam piping. A. L. Johnston, jr. Eng M 48:694-703 F '15
- Heat lost from underground steam pipes. I. N. Evans. plan Heat & Ven 12:39-40 Ag '15
- Installation of steam piping. S. U. Tuspin. diag Elec W 65:415-16 F 13 '15
- New pipe chart and tables based on square feet of radiation. T. W. Reynolds. Heat & Ven 12:22-5 N '15
- Notes on some recent researches. J. E. Petavel. diag Engineer 120:433-4 N 5 '15
- Piping and supports in municipal plant. A. D. Williams. II diag Power 41:463-5 Ap 6 '15
- Power piping society. Iron Age 96:338 Ag 12 '15
- Steam pipes; formulas. Power 42:306 Ag 31 '15
- Stresses in steam pipes. S. U. Tuspin. Elec W 65:926-7 Ap 10 '15

Steam pipes—Continued

Table of the principal dimensions of pipes. Power 42:400-1 S 21 '15
Two ways of piping steam pumps. W. H. Wakeman. *diags* Dom Eng 72:138 J1 31 '15
See also Piping (power plants); Steam heating; Steam traps

Steam plants

Addition to the Westport power plant. W. O. Rogers. *11* plan Power 41:390-5 Mr 23 '15
Auxiliary station for transmission system; turbine of Mount Holly steam station of the Southern power company operates as synchronous motor when not under load. C. A. Mees. *11* plans Elec W 65:774-3 Mr 27 '15
Auxiliary steam plant of the Vancouver Island power company. H. W. Beecher. *11* plans Elec R & W Elec'n 67:373-8 Ag 28 '15
Auxiliary steam power plant for Vancouver island; steam turbine driven plant using oil fuel. W. L. Kidston. *11* plan Power 42:634-8 N 9 '15
Building a power station upon one in service. *11* diag plan Elec W 66:965-7 O 30 '15
Central generating system for University of Michigan. *11* plans Elec W 65:646-51 Mr 13 '15
Changes in an old plant. N. L. Schloss. *plan* Power 42:120-1 J1 27 '15
Chimneys for oil- and coal-burning plants. F. H. Rosencrans. Power 41:637-3 My 11 '15
Coal and ash handling at the gorge plant of the Northern Ohio traction & light co. A. D. Williams. *11* diag Power 42:398-400 S 21 '15
Combination electric heating plant, Laramie, Wyo. A. E. Anderson. *11* Power 42:602-5 N 2 '15
Commercial value of exhaust steam. A. L. Johnston, Jr. Eng M 49:327-33 Je '15
Connors creek power plant, Detroit. C. F. Hirschfeld. *11* diags plans Power 42:388-96 S 14 '15; Same cond. Am Soc M E J 37:499-508 S '15
Convenient operating reports for steam plants. Elec W 65:1623-6 Je 19 '15
Cumberland Edison power plant. W. O. Rogers. *11* plans Power 42:704-9 N 23 '15
Curves showing steam-station performance. Elec W 66:532-3 S 4 '15
Delray power plants. N. G. Reinicker. *11* plans Power 42:286-90, 343-4, 414-15, 435-6 Ag 31, S 7, 21-28 '15
Developments in steam-electric generating stations. J. Hunter. Power 40:397-3 D 22 '14
Easy calculation of steam coal required by power plants. R. B. Horton. Eng N 73:490 Mr 11 '15; Same. Power 41:622 My 4 '15
Economics of electric power station design. H. F. Parrshall. Elec W 66:690 S 25 '15
Enlarging a steam reserve station; problems involved in rehabilitating the Consolidated gas, electric light & power company's Westport station. J. C. Lathrop. *11* diags Elec W 65:1161-8 My 8 '15
First uniflow plant on Pacific coast, Hotel Rosslyn, Los Angeles. *11* plan Power 41:743-50 Je 1 '15
Fort Wayne station rebuilt. T. Wilson. *11* plans Power 42:534-9 O 19 '15
Getting the proper vacuum in summer. J. Willmore. *diags* Elec W 66:358-63 Ag 14 '15
Handling summer and winter loads in Newark Y. M. C. A. *11* diags Elec W 66:1082-4, 1203-5 N 13, 27 '15
Havana consolidated power plant. C. W. Ricker. *11* diags Power 42:218-22, 257-61 Ag 17-24 '15
How not to waste steam in creosoting plants. A. M. Lockett. Eng Rec 71:145 Ja 30 '15
Isolated power-house for factories. W. E. Francis. *11* Gen Elec R 18:1057-65 N '15
Lowellville, Ohio, turbine plant. W. O. Rogers. *11* diags Power 42:138-42 Ag 3 '15
Mechanical handling of coal and ashes in the power plant. C. C. Brinley. *11* diags Eng M 49:872-87; 50:85-77 S-O '15
Modern power-house condensing plant. A. Arnold. Inst E E J 53:848-50 Je 15 '15
New Morrison hotel plant, Chicago. T. Wilson. *11* plans Power 42:70-3, 111-15 J1 20-27 '15
New Penn Central power co.'s Williamsburg plant. W. O. Rogers. *11* plans map Power 42:570-8 O 26 '15

New plant at the Stepney electricity works. *11* diags Engineer 120:385-8, 390 O 22 '15
New traveling screens at Delray. C. F. Hirschfeld. *11* diag Power 41:333-4 Mr 9 '15
New York Interborough power plant enlargement. *11* diags Elec Ry J 45:744-9 Ap 17 '15; Same. Elec W 65:975-9 Ap 17 '15
Oil-burning stand-by plants. C. H. Delany. Power 42:172-5 Ag 3 '15; Abstract. Elec W 65:1514 Je 12 '15
Oil-burning steam station in Seattle, Wash. *11* Elec W 65:99-101 Ja 9 '15
Oil separation from water of condensation; abstract. M. Vahle. *diags* Am Soc M E J 37:345-8 Je '15
Operating features of a small plant; details of power-plant layout, operating conditions, condensing arrangements and motor service. *11* diag Elec W 66:356-7 Ag 14 '15
Ordinary wastes in the power plant. C. L. Hubbard. *plans* Eng M 49:809-17 S '15
Paper mill power plants. W. Weaver. Power 42:349 S 7 '15
Piping and supports in municipal plant. A. D. Williams. *11* diags Power 41:463-5 Ap 6 '15
Possible lines of power plant progress. C. C. Thomas. Elec Ry J 45:939 My 15 '15
Power plant at Kincaid, Ill. T. Wilson. *11* diags plans Power 42:430-4 S 23 '15
Power plant of American engineering company. *11* plans Power 41:38-40 Ja 12 '15
Power plant of new Lumber exchange building, Chicago. T. Wilson. *11* plans Power 41:764-70 Je 8 '15
Power plant of the Granby co. T. Wilson. *11* plans Power 42:2-7 J1 6 '15; Abstract. Eng & Min J 100:113-15 J1 17 '15
Power plant of the J. B. Stetson company. W. O. Rogers. *11* diag Power 41:112-15 Ja 26 '15
Power plant of the new Equitable building, New York. *11* Elec W 66:81-5 J1 10 '15
Power plants as nuisances. A. L. H. Street. Power 42:436-7 S 28 '15
Private electrical plant at Kensington. *11* diags Engineer 120:432-3, 436 N 5 '15
Problems in power-plant design. (Engineers' study course) C. L. Hubbard. *plans* Power 40:758-60, 790-2, 820-2, 858-60, 894-7, 931-2; 41:32-4, 66-3 N 24-Ja 12 '15
Proposed Manchester generating station. S. L. Pearce. Elec R & W Elec'n 67:672-3 O 9 '15
Record keeping in the power plant. S. J. H. White. Power 41:243-4 F 18 '15
Reduction of power costs in a factory power plant. T. K. Roberts. *diags* Ind Eng 14:445-50 D '14
Savage manufacturing co.'s power plant, Savage, Md. W. O. Rogers. *11* plans Power 42:38-43 J1 13 '15
Seattle municipal lighting plant. W. L. Kidston. *11* plans Power 41:182-5 F 9 '15
Seventy-fourth street station and its new cross-compound turbines. C. H. Bromley. *11* Power 41:528-32 Ap 20 '15
Springfield (Ohio) railway power plant rebuilt without interfering with operation. *11* diags plan Elec Ry J 46:898-902 O 30 '15
Stand-by plant supplying steam to central heating system. G. Broili. Power 41:726 My 25 '15
Standard iron co.'s steam-turbine power plant. O. C. Thomas. *11* Power 41:49-50 Ja 12 '15
Steam-turbine installation in Mexico. J. Klemm. *diags* Power 41:192-3 F 9 '15; Same. Eng & Min J 99:603-4 Ap 3 '15
Tom Hunter, hoisting engineer. W. O. Rogers. *11* Power 41:160-2; 42:548-50 F 2, O 19 '15
Two American-built locomobile power plants. *11* diags Elec W 65:407-11 F 13 '15
Use of superheated steam. L. P. St. Cyr. Power 42:87-8 J1 20 '15
Using volcanic steam for the production of electrical energy. *11* Sci Am 112:97-8 Ja 30 '15
Virginia power company's Cabin Creek plant. *11* diags plan map Elec W 66:239-44 J1 31 '15
Warren state hospital power plant. W. O. Rogers. *11* diags plan Power 42:362-5, 408-12 S 14-21 '15

Steam plants—Continued

Washington avenue power plant, Scranton, Penn. W. O. Rogers. *Il diag Power* 41:368-76 Je 29 '15

See also Blowoff tanks; Boiler plants; Boilers; Electric plants; Feed water heaters; Piping; Steam engineering; Steam engines; Steam turbines

Safety devices and measures

Safety in isolated power plants. *Il Am Ind* 16: suppl-4 Ag; suppl-4 O '15

Testing

Power plant testing. W. M. Selvey. *diags Inst E B J* 58:109-18; Discussion. 58:118-45, 181-8 Ja 1-15 '15

Tests of large steam hoists. *Il. E. Spring. Gen Elec R* 18:179-89 Mr '15

Steam purifiers

Tracy steam purifier. *Il Power* 42:413 S 21 '15

Steam regeneration. See Exhaust steam

Steam shovels

Biggest steam shovel; excavator built for stripping coal beds. *diags Eng M* 50:452-3 D '15

Combination crowding feature of Thew revolving shovel. *Il Eng Rec* 72:466 O 9 '15; *Eng & Contr* 44:295-6 O 13 '15

Grade-board for steam-shovel use. L. B. Pringle. *Eng & Min J* 99:572 Mr 27 '15

Individual electric lighting outfits for steam shovels. *Eng N* 73:24 Ja 7 '15

Individual electric lighting plants for steam shovels. *Il Elec R & W Elec'n* 66:90-1 Ja 9 '15; *Iron Age* 94:1396 D 17 '14; *Eng & Min J* 99:15 Ja 2 '15; *Colliery* 35:397-8 F '15

Large steam shovel. *Il Engineer* 119:362 Ap 9 '15

Methods of excavation for buildings. A. B. McDaniel. *Il diags Eng Rec* 71:68-70 Ja 16 '15

Operation analysis of new machines which cheapen the moving of earth on road work. A. B. McDaniel. *Il Eng Rec* 72:126-8 Ji 31 '15

Revolving shovel. *Il Good Roads n s* 9:118-19 Mr 6 '15; *Eng N* 73:540-1 Mr 18 '15; *Eng & Min J* 99:865 My 15 '15

Steam shovel burrows its way out of cut. *Il Eng N* 74:365-6 Ag 19 '15

Steam shovel cuts costs of repairing subgrade on paving contract. A. D. Blakeslee. *Eng Rec* 72:289-40 Ag 21 '15

Steam shovel digs 48-inch pipe trench in busy street. F. H. Pond. *Il Eng Rec* 71:693-4 My 29 '15

Unit costs of steam shovel work in Cuba. J. M. Blachoff. *Eng & Contr* 44:276-8 O 6 '15

See also Buckets

Safety devices and measures

Safety first on steam shovels. *Il Eng Rec* 71: 151 Ja 30 '15

Steam tables

Electric steam tables for lunch counters and restaurants. *Il Elec W* 66:770 O 2 '15

Steam traps

Cockson return steam trap. *Il diag Power* 41: 588 Ap 27 '15

De Lancey tubular-valve steam trap. *Il Power* 42:596 O 26 '15

Duplex steam trap and boiler feeder. *Il Power* 42:85 Ji 20 '15

Locating and piping steam traps. W. H. Wake-man. *diag Dom Eng* 71:305 Je 12 '15

Lytton thermo syphon trap. *diag Power* 42:51 Ji 13 '15

Modern practice in heating and ventilation. A. G. King. *Il diags Dom Eng* 68:124-6; 69: 354-5; 70:2-4 Ag 1, D 19 '14, Ja 2 '15

Radiator traps and test data. L. M. Arkley. *diag Heat & Ven* 12:37-9 S '15

Report of tests of radiator steam traps. J. A. Donnelly. *Am Soc Heat & V E* 19:197-201 '13

Return steam trap. *diag Power* 41:193 F 9 '15

Return traps for feeding boilers. K. M. Gilbert. *diags Power* 41:467-8 Ap 6 '15

Scheme for the disposal of high and low pressure steam drips. *Elec W* 66:301 Ag 7 '15

Test of radiator steam traps, engineering department, state of California. E. D. Griffiths. *plan Am Soc Heat & V E* 19:194-6 '13

Steam turbines

Calculation of centrifugal stresses in turbine rotors; abstract. W: Kerr. *Am Soc M E J* 37:298-9 My '15

Circulating-oil system of lubrication. *plans Elec W* 66:411 F 13 '15

Comparison costs, steam turbine and Diesel engine, 600 kw. power plant. *Elec W* 66: 807 O 9 '15

Composite-type steam turbine. *diags Power* 41:436-7 Mr 30 '15

Determination of pressure variation in steam turbines and of dimensions of nozzles by means of the JS diagram; abstract. Schmolke. *Am Soc M E J* 37:411-12 Ji '15

Difference between reaction and impulse turbines. H. A. Everett. *Int Marine Eng* 20:82-3 F '15

Dimensions, weights and costs of steam turbines. A. A. Potter and S. L. Simmering. *Power* 41:750 Je 1 '15

Effect of vacuum in steam turbines. G. G. Stoney. *Engineer* 118:521-3 N 27 '14; Same cond. *Sci Am S* 79:69 Ja 30 '15; Same cond. *Power* 41:312-16 Mr 2 '15; Discussion. *Engineer* 118:502-3 N 27 '14

Exhaust steam turbine practice. C. A. Tupper. *Il Iron Tr R* 55:1031-5+ D 3 '14

Exhaust steam turbines. *Il Colliery* 35:619-20 Je '15

Five hundred kilowatts from exhaust of hoisting engine. T: Wilson. *Il diags plans Power* 42:143-6 Ag 3 '15

Forty years' advance in steam power units. *Il Power* 41:302-4 Mr 2 '15

Future central station development. J. A. Moyer. *Elec Ry J* 45:987 My 22 '15

Gland packing. *diags Elec W* 65:416 F 13 '15

High steam economy shown by Swedish steam turbine. *Elec W* 66:918-20 O 23 '15

How to select your prime mover. G. Flak. *Iron Tr R* 57:569-72+ S 23 '15

Lining up small turbine sets. J. H. Hurley. *Power* 41:714-15 My 25 '15

Losses in steam turbines. *Elec Ry J* 45:785 Ap 24 '15

Low-pressure turbine at the Carpenter steel mill. *Il plan Power* 42:74-5 Ji 20 '15

Low-pressure turbine manifestation. I. L. Benedict. *Power* 41:326-7 Mr 9 '15

Low-pressure turbines in steel mills. F. G. Cutler. *Power* 40:827-8 D 8 '14

Metropolitan needs and sizes of prime movers. *Il Elec W* 66:799-801 O 9 '15

Most economical vacuum for turbines. W. H. Herschel. *Power* 41:744-7 Je 1 '15

Operating experiences with bleeder-type turbines. F. W. Leas. *Power* 42:28-9 Ji 6 '15; Abstract and discussion. *Elec R & W Elec'n* 66:1118 Je 12 '15; Excerpt. *Elec W* 66:1622 Je 19 '15

Possible economies from the use of exhaust steam in a water gas plant. S. A. Reinhard and C. A. Schnerr. *Am Gas Light J* 102:226-7 Ap 12 '15

Present status of prime movers. H. G. Stott, R. J. S. Pigott and W. S. Gorsuch. *Am Inst E E Pro* 83:954-62 Je '14; Discussion. 34: 85-102 Ja '15

Relation between steam-turbine rating and water rate. *Elec W* 66:753-4 O 2 '15

Ridgway steam turbine. *Il diags Power* 41:566-8 Ap 27 '15

Rolling mill with steam turbine drive: plant of the Carpenter steel company. *Il plan Iron Age* 94:1221-4 N 26 '14; Same. *Iron Tr R* 55:997-1000 N 26 '14; Same. *Power* 41:455-6 Mr 30 '15; Same cond. *Eng M* 48:591-3 Ja '15

Seventy-fourth street station and its new cross-compound turbines. C. H. Bromley. *Il Power* 41:528-32 Ap 20 '15

Small condensing turbines. W. J. A. London. *Il diags Power* 41:426-31 Mr 30 '15

Specifications for alloys for high-speed superheated steam turbine blading. W. B. Parker. *Il Engineer* 120:441-3 N 5 '15

Standard iron co.'s steam-turbine power plant. O. C. Thomas. *Il Power* 41:49-50 Ja 12 '15

Start a steam turbine slowly. F. W. Wearin. *Power* 42:490 O 5 '15

Steam turbines—Continued

- Steam consumption guarantees of small non-condensing turbines. W. J. A. London. *Elec W* 85:1048-9 Ap 24 '15
- Steam turbine blade fastenings. J. A. Capstaff. *Il diag* Power 42:98-103 J1 20 '15; Abstract. *Int Marine Eng* 20:323 J1 '15
- Steam-turbine diagrams. F. R. Low. *diag* Power 41:596-600 My 4 '15
- Steam-turbine diagrams. P. M. Robinson. Power 41:660-1 My 11 '15
- Steam-turbine installation in Mexico. J. Klemm. *diag* Power 41:193-3 F 9 '15; Same. *Eng & Min J* 99:503-4 Ap 3 '15
- Steam turbine mill drive; with discussion. J. D. Berg. *Il diag* *Eng Soc W Fa* 30:778-803 N '14; Abstract. *Am Soc M E J* 3:238-9 Ap '15
- Steam turbines—their principles and operation. C. H. Bromley. *Il diag* Power 41:628-31 My 11 '15
- Swiss turbo-generator sets. *Il diag* *Engineer* 119:179-82 E 19 '15
- Things of interest in recent turbine design. Power 40:910-12 D 29 '14
- Turbine examination questions. W. Leonard. Power 42:593-4 O 26 '15
- Turbines vs. engines in units of small capacities. J. S. Barstow. *Am Soc M E J* 37:511-15 S '15; Same. *Sci Am S* 80:366-8 D 4 '15; Same cond. Power 42:278-80 Ag 24 '15; Excerpts. *Eng & Min J* 100:392-3 S 4 '15
- Turbo-blower governing devices; abstract. A. Stodola. *diag* *Am Soc M E J* 37:181-3 Mr '15
- Turbo-blowers for blast-furnace blowing. R. H. Rice. *Il diag* *Am Inst Min E Bul* 89:721-43 My '14; Discussion. 100:791-809 Ap '15
- Turbo-generator sets with impulse turbines. *Il Elec W* 65:951 Ap 10 '15
- 1250 kw mixed pressure turbo-generator; abstract. F. Schulte. *Am Soc M E J* 37:651-2 N '15
- Two-stage condenser. P. A. Bancel. *diag* Power 42:402-7 S 21 '15; Excerpts. *Elec W* 66:1148-9 N 20 '15
- Wait turbo-generator on elevator load in the Lumber exchange building, Chicago. *Il diag* Power 42:717-20 N 23 '15

Foundations

- Structural steel supports for large steam turbines. *diag* plan *Eng N* 73:66-9 Ja 14 '15
- Steam turbines, Marine**
- Geared marine steam turbines. *Engineer* 119:437-8 Ap 30 '15
- Geared turbine Atlantic liner, Transylvania. plan (p. 435) *Engineer* 118:433 N 6 '14; Same cond. *Eng M* 48:605-6 Ja '15
- Geared turbines for ship propulsion; abstract. W. D. McLaren and G. M. Welsh. *Int Marine Eng* 20:89 F '15
- Governing of marine steam turbines. *diag* *Engineer* 119:235 Mr 5 '15
- Turbine installation on torpedo boats of the new Spanish navy. *Int Marine Eng* 20:516 N '15

Steam valves. See Valves**Steamboat lines**

- Commission on relations between railways and waterways. *Ry Age* 58:1037-8 My 21 '15
- Railroads lose lake lines. *Iron Age* 95:1146 My 20 '15
- Railroads must divorce lake steamship lines. map *Ry R* 56:682-5 My 22 '15
- Railways must abandon control of boat lines on the Great Lakes; abstract of the Interstate commerce commission's decision. *Ry Age* 58:1046-7 My 21 '15
- Southern Pacific can continue boats on Sacramento river. *Ry R* 56:856 Ja 19 '15
- Southern Pacific may operate steamship lines to Balboa. *Ry R* 56:254-5 F 20 '15
- Southern Pacific's ownership of the schooner Pasadena. *Ry R* 56:565-6 Ap 24 '15

Steamboats

- Cable-repairing steamer "Transmitter." F. C. Coleman. *Il plan* *Int Marine Eng* 20:382-6 S '15
- Development of the Transatlantic steamship. *Il Sci Am* 112:523-5 Je 5 '15
- Economy. F. H. Sadler. *diag* *Int Marine Eng* 20:459-63 O '15

- French-built cable ship Edouard Jéramec. F. C. Coleman. *Il diag* *Int Marine Eng* 20:146-50 Ap '15
- Fruit carrying steamer van Hogendorp. F. C. Coleman. *Il diag* plans *Int Marine Eng* 20:67-71 F '15
- Interesting change in twin screw steamer. D. Sawyer. *Int Marine Eng* 20:176-8 Ap '15
- Interesting vessels of fifty years ago; the Stevens Battery and the Monitor. W. D. Forbes. *diag* *Int Marine Eng* 20:227-8 My '15
- Interior views of the Great Northern. *Il Int Marine Eng* 20:384-8 S '15
- Japanese liner Fushimi Maru. *Il plan* *Int Marine Eng* 20:311-12 J1 '15
- Lake passenger steamer Noronic. *diag* *Int Marine Eng* 20:431-5 O '15
- New P. & O. boat: the Khiva. *Int Marine Eng* 20:59 F '15
- Red Star liner Belgenland. *Il Int Marine Eng* 20:341-7 Ag '15
- Shallow draft boat for the Yangtze Kiang. plans *Int Marine Eng* 20:490-2 N '15
- Southern Pacific ferry steamer Alameda. E. W. Olin. *Il plans* *Int Marine Eng* 20:194-8 My '15
- Steamer Emblane. *Il plans* *Int Marine Eng* 20:297-8 J1 '15
- Steamer Francis Hanly. *Il diag* plans *Int Marine Eng* 20:30-2 Ja '15
- Steamship design; a method of determining the principal dimensions. H. A. Everett. *Int Marine Eng* 20:436-40 O '15
- S. S. Great Northern and Northern Pacific for the Spokane, Portland & Seattle railway company. *Il diag* plans *Int Marine Eng* 19:535-45 D '14
- Turbine passenger steamships Great Northern and Northern Pacific. *Il plan* (supp) *Engineer* 120:129-31 Ag 6 '15
- Twin screw passenger and cargo steamers Missanable and Metagama; abstract. *Int Marine Eng* 20:90 F '15
- Western river steamers and barges. E. A. Burnside. *Il plan* *Int Marine Eng* 20:478-87 N '15
- White Star liner Britannic. *Il Int Marine Eng* 19:556-9 D '14
- See also* Boilers, Marine; Car ferries; Freight ships; Marine engines; Propellers; Ship propulsion; Shipbuilding; Shipping; Steamboat lines; Tank ships; Tenders, Naval; Towboats; Warships; Yachts
- Steamers. See Steamboats**
- Steamships. See Steamboats**
- Steel**
- American society for testing materials 18th annual meeting. *Ry Age* 59:61-6 J1 9 '15
- Brittleness in steel; abstract. V. Bernard and A. Portevin. *Il Iron Age* 96:1056 N 4 '15
- Can the dissociation theory be applied to solid solutions in steels? E. D. Campbell. *Am Chem Soc J* 37:2039-46 S '15
- Chemical and mechanical relations of iron, cobalt and carbon. J. O. Arnold and A. A. Read. *Iron Age* 95:953 Ap 29 '15
- Constitution of the iron-carbon alloys: a chemical theory to explain the different properties by the existence of ferrated carbides. G. Auchy. *Iron Age* 95:50-1 Ja 7 '15
- Copper steel for resisting corrosion. D. M. Buck. *Eng M* 40:762-3 Ag '15
- Corrodibility of cast iron and steel. J. N. Friend and C. W. Marshall. *Iron Age* 95:1114-15 My 20 '15
- Corrosion of steel and cast iron compared. R. C. McWane and H. Y. Carson. *Il Foundry* 43:467-9 N '15
- Effect of chemical composition upon the magnetic properties of steels. W. E. Ruder. *Gen Elec R* 18:197-203 Mr '15
- Effect of displaced magnetic pulsations on the hysteresis loss of sheet steel. L. W. Chubb and T. Spooner. *Il diag* *Am Inst E Bul* Pro 34:2321-42 O '15
- Effect of finishing temperatures of rails on their physical properties and microstructure. W. R. Shimer. *Il Am Inst Min E Bul* 99:557-85 Mr '15; Same. *Iron Age* 95:394-7 F 18 '15; Same. *Iron Tr R* 56:379-82 F 18 '15; Discussion. *Am Inst Min E Bul* 101:1107-11 My '15

Steel—Continued

- Elastic properties of steel at moderately high temperatures; abstract. F. R. Rowett. *Am Soc M E J* 37:419 J1 '15
- Has titanium any influence on the properties of steel? F. A. J. FitzGerald. *diags Met & Chem Eng* 13:28-9 Ja '15; Same cond. *Iron Age* 95:309 F 4 '15; Summary. *Elec Ry J* 45: 98 Ja 9 '15
- Machine steel for small tools. O. D. Kinsey. *II diags Ry Age (Mech ed)* 89:189-90 Ap '15
- Modern steels and their heat treatment. R. H. Abbott. *II J Fr Inst* 179:415-38 Ap '15; Same. *Iron Tr R* 57:981-6 N 18 '15; Same abr. *Iron Age* 95:790-2 Ap 8 '15; Abstract, with discussion. *Am Soc M E J* 37:267-71 My '15
- Oxy-acetylene welding process. S. W. Miller. *II Mach* 22:216-18 N '15
- Phosphorus in iron and steel; abstracts. W. H. Hatfield. *II Engineer* 120:335-6 O 8 '15; *Iron Age* 95:1234 N 25 '15
- Protective coatings for iron and steel. E. P. Later. *Foundry* 42:497-8; 43:35+ D '14-Ja '15
- Steel and civilization. J. O. Arnold. *Sci Am S* 80:227 O 9 '15
- Steel—its pathology. J. E. Schipper. *II diags Automobile* 32:611-15, 660-3+, 706-8+, 796-800 Ap 8-22, My 6 '15
- Steel over 2000 years old. R. A. Hadfield. *Iron Age* 95:464 Ag 26 '15
- Structure of carbon tool steel. J. V. Emmons. *II Iron Age* 95:842-3 Ap 15 '15
- Surface decarbonization of tool steel. J. V. Emmons. *II Am Inst Min E Bul* 13:2233-48 S '14; Same cond. *Iron Tr R* 55:737+ O 15 '14; Same cond. *Iron Age* 94:1288-90 D 3 '14; Abstract. *Am Soc M E J* 36:0198-9 O '14; Abstract. *Ind Eng* 15:27-8 Ja '15; Discussion. *Am Inst Min E Bul* 100:790-4 Ap '15
- Symposium on iron and steel. *Met & Chem Eng* 13:655-7 O 1 '15
- Titanium and its effects on steel. G. F. Comstock. *II J Ind & Eng Chem* 7:87-94 F '15; Same cond. *Sci Am S* 80:327 N 20 '15
- Unsymmetrical hysteresis loop. J. D. Ball. *Am Inst E E Pro* 84:2375-97 O '15
- See also* Annealing; Armor plate; Bessemer process; Case hardening; Cobalt steel; Concrete reinforcement; Corrosion and anti-corrosives; Damascus steel; Electrolytic corrosion; Foundry practice; Iron; Manganese steel; Metallography; Metals; Nickel steel; Railroad ties, Steel; Rails; Silicon steel; Steel, Structural; Steel castings and other headings beginning Steel; Tool steel; Vanadium steel
- Analays**
- Alumina in steel. G. F. Comstock. *II Met & Chem Eng* 13:891-5 D 1 '15
- Anoloid method for the determination of manganese in steel, iron ore and slag. *Met & Chem Eng* 13:793-4 D '14
- Anoloid method for the determination of phosphorus in steel, iron and slag. *Met & Chem Eng* 13:191-2 Mr '15
- Determination of aluminum oxide and total aluminum in steel. F. O. Kichline. *J Ind & Eng Chem* 7:806-7 S '15
- Determination of chromium and vanadium in steel. C. H. Rich and G. C. Whittam. *Met & Chem Eng* 13:238-9 Ap '15
- Determination of copper in steel. W. D. Brown. *J Ind & Eng Chem* 7:213 Mr '15
- Determining carbon in cast steel rapidly. W. L. Morrison. *II Foundry* 43:151-2 Ap '15
- Effect of oxygen on steel quality. J. A. Pickard and F. M. Potter. *Iron Tr R* 57:136-7+ J1 '15 '15
- Electric muffle furnace for the determination of carbon and oxygen in steel and tungsten powder. C. M. Johnson. *II Met & Chem Eng* 13:17 Ja '15
- How to detect phosphorus in steel. W. T. Stead. *II Iron Tr R* 57:989-90 N 18 '15
- Improved method for the determination of nitrogen in steel. L. E. Barton. *J Ind & Eng Chem* 6:1012-13 D '14
- Method for determining gases in steel. P. Goerens and J. Paquet. *diag Iron Age* 95: 1060-1 My 18 '15
- New specifications for rails; Pennsylvania R. R. system. *Eng N* 74:397 Ag 26 '15
- Platinum boats for carbon determination by the direct combustion method. H. F. Siever. *Met & Chem Eng* 13:525 S 1 '15
- Shells from European battlefields. *II Iron Age* 95:186-7 J1 22 '15
- Simplified ferrous sulfate method for the determination of vanadium in steel. G. T. Dougherty. *J Ind & Eng Chem* 7:419-20 My '15
- Failures**
- Failure and heat treatment of drill steel. S. V. Bergh. *II diags Eng & Min J* 99:612-14 Ap 3 '15
- Failure of hollow drill-steel. T. E. Sturtevant. *Eng & Min J* 99:579 Mr 27 '15
- Progressive fractures from alternate bending. J. Younger. *Eng N* 73:1237 Je 24 '15
- Surprising failure of steel ship plates. *Int Marine Eng* 20:50-1 F '15
- Nomenclature**
- Modified iron-carbon diagram. E. A. Sperry. *Met & Chem Eng* 13:469-71 Ag '15
- Specifications**
- Proposed standard specifications for quenched high-carbon steel splice bars. *Ry Age* 55:61-2 J1 9 '15
- Specifications for cold drawn steel. *Iron Tr R* 57:47 J1 1 '15
- Specifications for springs, alloy steel forgings and axles. *Ry Age* 55:53-4 J1 9 '15
- Testing**
- Behavior of iron and steel under compression in tests; abstract. H. Monden. *Am Soc M E J* 37:721 D '15
- Brinell hardness and tenacity factors of a series of heat-treated special steels; discussion. A. McWilliam and E. J. Barnes. *Met & Chem Eng* 13:502-3 Ag '15
- Cause of brittleness in soft steel: German tests on a Krupp shock-testing machine. *diags Iron Age* 94:1322-3 D 3 '14
- Change in volume and shape by hardening. *Iron Age* 95:1399-1403 Je 24 '15
- Charpy impact test on treated steels. J. J. Thomas. *II Iron Age* 95:138-40 J1 15 '15
- Comparison of the properties of a nickel, carbon and manganese steel before and after heat treatment. R. A. Abbott. *Am Soc M E J* 37:440-2 Ag '15; Same. *Iron Tr R* 57:22-3 J1 '15; Discussion. *Am Soc M E J* 37:442-3 Ag '15
- Data on nickel steels. G. W. Armstrong. *Eng & Contr* 44:53-4 J1 21 '15
- Detection of burning in steel. J. E. Stead. *II Iron Tr R* 57:843-4 O 28 '15; Abstract. *Iron Age* 95:233 J1 22 '15
- Dynamic properties of steel castings. J. L. Uhler. *II diag Iron Age* 95:754-6 S 30 '15; Same. *Iron Tr R* 57:630-2 S 30 '15; Same. *Foundry* 43:417-19 O '15
- Effect of carbon on the physical properties of heat-treated carbon steel. J. H. Nead. *II Am Inst Min E Bul* 108:2341-57 D '15
- Effect of titanium alloys on steel. G. F. Comstock. *II Iron Tr R* 57:391-5+ Ag 16 '15
- Effect of various elements in steel on its resistance to corrosion. A. S. Cushman. *Eng & Contr* 44:64-5 J1 28 '15
- Finishing temperatures of rails; American society for testing materials committee report. *Iron Tr R* 55:1307-9 Je 24 '15; Same. *Ry R* 57:201-3 Ag 14 '15; Same cond. *Iron Age* 95: 19-21 J1 1 '15; Excerpts. *Ry Age* 59:64-5 J1 9 '15
- Fixing the elastic limit standard. T. D. Lynch. *II Iron Tr R* 57:79-81+ J1 8 '15
- Heat-treatment and testing of shrapnel shells. J. M. Wilson. *diags Mach* 22:28-31 S '15
- Importance of annealing steel castings. *Iron Age* 95:128-30 J1 15 '15
- Locating the critical range with the Brinell ball tester. J. G. Ayers, jr. *Mach* 21:283 D '14
- Measuring the twisting strength of steel. R. H. Moulton. *II Sci Am* 112:497 My 29 '15
- Micrographic inspection of steel: what the United States navy has done in fixing causes of failures. *II Iron Age* 95:292-3 F 4 '15
- Microscopic tests of steel; German investigations at Krupps. B. Strauss. *Iron Age* 95: 703-4 Ap 8 '15
- New test methods demanded. *Iron Tr R* 56: 571-2 Mr 18 '15

Steel—Testing—Continued

- Novel tests for rail steel. Elec Ry J 46:454 S 11 '15
- Reagent for macroscopic etching. J. L. Jones. II Iron Tr R 56:1303-4 Je 24 '15; Abstract. Eng M 49:919 S '15
- Recent progress in corrosion resistance. D. M. Buck. II Iron Age 95:1231-4 Je 3 '15; Same. Eng & Contr 48:574-6 Je 30 '15; Same. Iron Tr R 56:1155-8 Je 10 '15; Same. Metal Work 83:879-82 Je 13 '15; Excerpt (Copper steel for resisting corrosion) Eng M 49:762-3 Ag '15; Discussion. A. S. Cushman and others. Iron Age 95:1234-9 Je 3 '15; Same. Iron Tr R 56:1159-63-1 Je 10 '15; Same abr. Metal Work 83:882-3 Je 18 '15
- Standardization of scleroscope observations. J. J. Ralph. diags Mach 22:52-3 S '15
- Stress distributions in engineering materials; report to the British association. Engineer 120:354-5 O 8 '15
- Structure and hysteresis loss in medium-carbon steel. F. C. Langenberg and R. G. Webber. II Am Inst Min E Bul 98:291-300 F '15; Same. Iron Age 95:506-8 Mr 4 '15; Same cond. Iron Tr R 57:576-7 S 23 '15
- Suggestions regarding the determination of the properties of steel. A. N. Mitinsky. Am Inst. Min E Bul 104:1697-1705 Ag '15; Abstract. Iron Age 96:453-3 Ag 28 '15; Same cond. (Proportional limit is prime factor) Iron Tr R 57:1184-6 D 16 '15; Discussion. Am Inst Min E Bul 108:2481-95 D '15
- Unsoundness in ladle test ingots. R. W. Hunt. II Iron Tr R 57:1087-9 N 25 '15; Same. Iron Age 96:1303-5 D 2 '15
- Steel, Coloring of**
Carbonia finish. II Am Gas Light J 103:81 Ag 9 '15
- Steel, Hardening of**
Change in volume and shape by hardening. Iron Age 95:1399-1402 Je 24 '15
- Effect of chromium and tungsten upon the hardening and tempering of high-speed tool steel; abstracts with discussion. C. A. Edwards and H. Kikkawa. Engineer 120:313-14 O 1 '15; Iron Age 96:1126-7 N 11 '15
- Effects of quenching mediums. H. V. Wille. II Iron Tr R 57:92-4 JI 8 '15; Same cond. Iron Age 96:190-1 JI 22 '15
- Factors in hardening tool steel: abstracts. J. A. Mathews and H. J. Stagg. Elec Ry J 44:1249-50 D 5 '14; Iron Age 95:1340-4 D 10 '14; Mach 21:396-9 Ja '15; Ind Eng 15:58-9 F '15; Ry Age (Mech ed) 89:243-7 My '15; Iron Tr R 57:184-7-4 JI 22 '15; Abstract, with discussion. Am Soc M E J 37:141-7 Mr '15
- Hardening bevel wheels by special machine. II diag Automobile 32:461 Mr 11 '15
- Hardening high speed screw machine tools. R. A. Millholland. Iron Age 96:745 S 30 '15
- Hardening of metals. Am Soc M E J 37:489-90 Ag '15
- Hardening of steel. J. O. Arnold. Engineer 118:877 D 18 '14
- Recent progress with alloys—theory explaining self-hardening metals including the special steels. L. Guillet. Automobile 31:1118-20 D 17 '14
- Salt baths for steel hardening; carbonizing and decarbonizing effects of molten salts. E. F. Lake. Mach 21:657-9 Ap '15
- Spring forming and hardening machine. II Iron Age 95:1164-5 My 27 '15
- See also Case hardening; Steel, Heat treatment of
- Steel, Heat treatment of**
Automatic heat control. E. P. Reichhelm. II Mach 21:304 D '14
- Carbon and high-speed steel. H. W. Loughridge. Ry Age (Mech ed) 89:472 S '15
- Carburization and heat-treatment. J. G. Ayers, jr. II Mach 22:17-23 S '15
- Charpy impact test on treated steels. J. J. Thomas. II Iron Age 96:138-40 JI 15 '15
- Comparison of the properties of a nickel, carbon and manganese steel before and after heat treatment. R. R. Abbott. Am Soc M E J 37:440-2 Ag '15; Same. Iron Tr R 57:22-3 JI 1 '15; Discussion. Am Soc M E J 37:442-3 Ag '15
- Continuous rotary heat-treating furnace. F. M. Paul. II Iron Age 96:569 S 9 '15; Same. Horseless Age 96:234 S 1 '15; Same. Sci Am 113:363 O 23 '15
- Decarbonization of steel in salt baths when heating for hardening. Mach 21:344 D '14
- Development of heat treatment. R. R. Abbott. II Sibley J 29:150-6 F '15; Abstract. Met & Chem Eng 13:390-1 Je '15
- Developments in the heat treatment of railway searing; with discussion. W. H. Phillips. II Eng Soc W Pa. 30:737-77 N '14; Abstracts. Iron Tr R 56:1184 D 17 '14; Am Soc M E J 37:237-3 Ap '15
- Discussion of heat treatment results. H. V. Wille. Iron Tr R 57:986-7 N 18 '15
- Effect of carbon on the physical properties of heat-treated carbon steel. J. H. Nead. II Am Inst Min E Bul 108:2341-57 D '15
- Electric furnace for reheating, heat treating and annealing. T. F. Bailly. Eng Soc W Pa. 31:256-72 Ap '15; Same. Met & Chem Eng 13:558-64 S 1 '15; Same cond. Ry Age (Mech ed) 89:481-2 S '15; Discussion. Eng Soc W Pa. 31:272-83 Ap '15
- Finding the transformation points in steel. E. F. Lake. II Mach 21:711-14 My '15
- Flexible heat-treating installation. II diag Iron Age 96:507-10 S 2 '15
- Heat-treating plant for forge shop work. II Iron Age 94:1284-6 D 3 '14
- Heat-treatment and testing of shrapnel shells. J. M. Wilson. diags Mach 22:28-31 S '15
- Heat treatment in automatic electric furnaces; with discussion. T. F. Bailly. Iron Age 96:938-5 O 28 '15; Same cond. Iron Tr R 57:833, 856 O 28 '15
- Heat treatment of gears. Iron Age 96:629 S 18 '15
- Heat treatment of iron and steel in a neutral atmosphere. A. H. White and H. T. Hood. diag Am Gas Light J 103:310-11, 314-15 N 15 '15
- Heat treatment of steel; discussion of papers at meeting of American society for testing materials. Iron Age 96:21-2 JI 1 '15
- High speed tool steels. F. C. A. H. Lantsberry. II Iron Age 96:238-41 JI 29 '15
- Modern steels and their heat treatment. R. R. Abbott. II J Fr Inst 179:415-38 Ap '15; Same. Iron Tr R 57:931-6 N 18 '15; Same abr. Iron Age 95:790-2 Ap 8 '15; Abstract, with discussion. Am Soc M E J 37:267-71 My '15
- Neglected phenomena in steel treatment. M. El Leeds. diags Iron Age 96:80-2 JI 8 '15
- Pointers on heat treatment of steel. J. H. Parker. diags Iron Tr R 56:771-4 Ap 15 '15
- Practical facts in heat treating steel. R. A. Millholland. Iron Age 95:835-7, 888-9 Ap 15-22 '15
- Producer gas for heat treating. II diags Iron Tr R 57:521-3 S 18 '15
- Recommended practice for heat-treating case-hardened carbon-steel objects. Foundry 43:102a Mr '15
- Recording instruments for heat-treating. II Automobile 32:460-1 Mr 11 '15
- Scientific manufacture of automobile springs. E. C. Arndts. II Horseless Age 94:921-3 D 23 '14
- Steel—its pathology.** J. E. Schipper. II Automobile 32:706-8-4 Ap 22 '15
- Study of an axle shaft for a motor truck. J. Younger. II diags Am Soc M E J 37:435-9 Ag '15; Same. Iron Tr R 56:1311-14 Je 24 '15; Same cond. Horseless Age 96:142-4 Ag 1 '15; Abstract. Iron Age 96:27 JI 1 '15; Discussion. Am Soc M E J 37:439-40 Ag '15
- Surface decarburization of steel. J. G. Ayers, jr. II Iron Tr R 56:1305-6-4 Je 24 '15; Same. Iron Age 96:5-7 JI 1 '15
- Tempering tools with the electric furnace. Ry Age (Mech ed) 89:590 N '15
- Tool steel heating forge. II Iron Tr R 56:679 Ap 1 '15
- See also Case hardening
- Steel, Structural**
Comparison of carbon steel and high-alloy steels for bridges. J. A. L. Waddell. Eng & Contr 41:685-88; Discussion. 41:688-90; 42:243-4; 495-6 Je 17, S 9, N 25 '14
- Heat treated and alloy steels. C. D. Young. Ry Age (Mech ed) 89:13-14 Ja '15
- Heat treated and alloy steels for locomotive parts. Ry Age 57:1128-30 D 18 '14

Steel, Structural—Continued

- How an axle failed in service. *Il* Iron Tr R 56:607-10+ Mr 25 '15
 New test methods demanded. Iron Tr R 56: 571-3 Mr 18 '15
 Old steel of razed building examined for rust. *Eng Rec* 72:223-4 Ag 21 '15
 Preventing corrosion of steel substructure of the Corlandt street ferry terminal of the Pennsylvania in New York city with gunite. *Il* Ry Age 58:852 Ap 16 '15
 Proper painting for steel work. Iron Tr R 55: 1036-7 D 3 '14; Same cond. *Eng M* 48:758-60 F '15
 Reciprocating and revolving parts; alloy and heat-treated carbon steel. H. A. F. Campbell. *Ry Age* (Mech ed) 89:215-16 My '15
 Steel for modern motor cars. *Il* Iron Tr R 56: 263-7 F 4 '15; Abstract. *Ind Eng* 15:57 F '15
 Steel for steering knuckles. E. F. Lake. *Il* Iron Tr R 56:611-13+ Mr 25 '15
 Steel—its pathology. J. E. Schipper. *Il* *diags Automobile* 32:795-800 My 6 '15
 Surprising failure of steel ship plates. *Int Marine Eng* 20:50-1 F '15
 Use of high-grade alloy steels to reduce weight of locomotives. H. V. Wille. *Am Soc M E* J 87:81-2 Ja '15

See also Bridges, Iron and steel; Cars, Steel; Silicon steel; Steel castings; Steel construction; Steel reinforcing bars

Painting

See Painting, Structural

Steel, Tool. See Tool steel

Steel alloys

- Alloy-steel rails. *Eng N* 72:1111-12 D 3 '14
 Alloy steels. G. L. Norris. *Met & Chem Eng* 13:739-42 O 15 '15
 Alloy steels economical for long-span bridges. J. A. L. Waddell. *Eng Rec* 72:386-7 S 25 '15
 Development of commercial alloy steels. E. D. Rogers. *Iron Age* 96:990-3 O 28 '15; Same cond. *Iron Tr R* 57:839-40+ O 28 '15
 Recent progress in corrosion resistance. D. M. Buck. *Il* *Iron Age* 95:1231-4 Je 3 '15; Same. *Eng & Contr* 43:574-6 Je 30 '15; Same. *Iron Tr R* 56:1155-8 Je 10 '15; Same. *Metal Work* 83:879-82 Je 18 '15; Excerpt (Copper steel for resisting corrosion) *Eng M* 49:763-3 Ag '15; Discussion. A. S. Cushman and others. *Iron Age* 95:1234-9 Je 3 '15; Same. *Iron Tr R* 56:1159-63+ Je 10 '15; Same abr. *Metal Work* 83:882-3 Je 18 '15
 Special steels for track work. W. C. Cushing. *Ry Age* 59:747-51 O 22 '15; Abstracts. *Eng Rec* 72:317 S 11 '15; *Iron Age* 96:992 S 23 '15; *Elec Ry J* 46:878-9 O 23 '15
 Steel—its pathology. J. E. Schipper. *Il* *Automobile* 32:660-3+ Ap 15 '15

See also Cobalt steel; Manganese steel; Nickel steel; Vanadium steel

Steel balls. See Balls, Steel

Steel belting. See Belting, Steel

Steel bins. See Bins, Steel

Steel bridges. See Bridges, Iron and steel

Steel cars. See Cars, Steel

Steel castings

- Acid open-hearth steel for castings. E. F. Cone. *Il* *Iron Age* 95:551-3 Mr 11 '15
 Castings as electrical apparatus parts. A. B. Reynders. *Iron Age* 94:1498-7 D 31 '14; Abstract (Holding an electrical manufacturer's business). *Foundry* 43:98-7 Mr '15
 Common sense-steel foundryman's great asset. S. Muntz and S. Roubieu. *Il* *Foundry* 43: 175-8 My '15; Same. *Iron Tr R* 57:949-52 N 11 '15
 Converter foundry of large capacity. E. F. Cone. *Il* *plan* *Iron Age* 96:669-74 S 23 '15
 Detroit steel castings company's plant. *Il* *plan* *Iron Age* 96:701-8 S 23 '15
 Dynamic properties of steel castings. J. L. Uhler. *Il* *diag* *Iron Age* 96:754-6 S 30 '15; Same. *Iron Tr R* 57:680-2 S 30 '15; Same. *Foundry* 43:417-19 O 15 '15
 Electric furnace in the foundry. W. G. Kranz. *Am Inst Min E* Bul 101:927-30 My '15; Same. *Foundry* 43:164-5 Ap '15; Same. *Iron Age* 95:

- 780-1 Ap 8 '15; Same. *Met & Chem Eng* 13: 565-6 S 1 '15; Discussion. N. Petriot. *Am Inst Min E* Bul 108:2507-11 D '15; Same. *Met & Chem Eng* 13:650 O 1 '15
 Electric furnace in the foundry. W. L. Morrison. *Iron Tr R* 57:177-9 JI 22 '15
 Finding costs in the steel foundry. G. Muntz. *Iron Tr R* 57:482-4 S 9 '15
 Heroult furnaces for foundry use. *Il* *diags* *Iron Tr R* 56:976-8 My 13 '15; Same. *Foundry* 43: 235-7 Je '15
 How to eliminate defects in steel castings. J. H. Hall. *Foundry* 43:146-51 Ap '15; Same. *Iron Tr R* 57:225-9+ JI 29 '15
 Importance of annealing steel castings. *Iron Age* 95:123-30 JI 15 '15
 Iron and steel castings. J. H. Hall. *Met & Chem Eng* 13:655 O 1 '15
 Limitations of the electric furnace in the manufacture of steel castings. E. F. Lake. *Met & Chem Eng* 13:137-8 Mr '15
 Limitations of the electric furnace in the manufacture of steel castings. G. Muntz. *Met & Chem Eng* 13:108-10 F '15
 Manganese-steel castings in the mining industry. W. S. McKee. *Il* *diag* *Am Inst Min E* Bul 108:2309-41 D '15; Same. *Iron Tr R* 57:1077-81 D 3 '15
 Production of large steel castings by the baby Bessemer. *Iron Age* 95:623 Mr 18 '15
 Radiography of metals. W. P. Davey. *Il* *Am Inst Min E* Bul 104:1515-25 Ag '15; Same. *Gen Elec R* 18:795-800 Ag '15; Same cond. *Iron Age* 95:522-4 S 2 '15; Abstract. *J Fr Inst* 180:489-90 O '15
 Shrinkage cracks in steel castings. W. R. Bos-singer. *Iron Tr R* 57:633 S 30 '15; Same. *Foundry* 43:411-12 O 15 '15
 Steel casting plant at Oakland, Cal. *Il* *Iron Age* 95:1387-8 Je 24 '15
 Steel foundry sessions of the American foundrymen's association. *Iron Age* 96:816-18 O 7 '15
 Steel mill castings: use of manganese steel in heavy rolling mill equipment. G. Tripp. *Il* *Iron Tr R* 56:49-55 Ja 7 '15
 Study in steel castings. J. H. Whitely. *Iron Age* 95:541-3 Mr 4 '15
 X-ray inspection of a steel casting. W. P. Davey. *Il* *Gen Elec R* 18:25-7 Ja '15; Same. *Iron Age* 95:126-7 Ja 21 '15; Same. *Sci Am S* 79:84 F 6 '15; Same. *Eng M* 49:106-7 Ap '15; Same. *Ry Age* (Mech ed) 82:170 Ap '15; Same. *Engineer* 119:350 Ap 9 '15

See also Steel ingots; Steel metallurgy

Steel columns. See Columns, Steel

Steel construction

- Aeroscope a novel feature of Panama-Pacific exposition. *Il* *Eng Rec* 71:423 Ag 3 '15
 Anchored airship: structural amusement devices for Panama-Pacific fair weighing 620 tons. *Il* *Iron Age* 95:184 Je 21 '15
 Chicago municipal pier. *Il* *diags* *Eng N* 74:193-7 JI 29 '15
 Covered slip and pier with gantry cranes for handling lumber. *diags* *Eng N* 74:494-5 S 9 '15
 Derrick mounted on travelling cranes for mill erection at Thane, Alaska. *Il* *Eng N* 73:127 Ja 21 '15
 Design and construction of the 435-ft. steel framed tower of jewels at the Panama-Pacific international exposition. F. S. M. Harris. *Il* *diags* *Eng & Contr* 43:47-54 Ja 20 '15; Same cond. *Eng N* 73:868-73 My 6 '15; Same cond. *Eng Rec* 71:112-16 Ja 23 '15
 Design of 152-foot steel-framed dome. A. W. Earl and T. F. Chace. *Il* *diags* *Eng Rec* 70: 451-4, 432-4 O 24-31 '14; Same. *Eng & Contr* 42:314-20 S 30 '14
 Design of steel elevated railways. N. Y. rapid transit system. M. E. Griest. *Il* *diags* *Eng N* 73:971-7 My 20 '15
 Designing a steel dome for the horticultural palace at the Panama-Pacific international exposition. A. W. Earl and T. F. Chace. *diags* *Eng N* 74:208-12 JI 29 '15
 Detail and fabrication of Harlem river tubes. T. Duckworth. *Il* *diags* *Eng Soc W Pa* 31: 538-60; Discussion. 31:560-88 O '15
 Economy in cost and erection of steel building results from cantilever beam design. *diags* *Eng Rec* 72:392-3 S 25 '15

Steel construction—Continued

- Erecting 40-ton girders at a height of 250 feet above the street. *Il diags Eng Rec 70: 699-702 1 26 '14*
- Fireproof ice-house at Lake Hopatcong. *diags Eng Rec 71:50-1 Ja 9 '15*
- Framing of the dome of the palace of horticulture, Panama-Pacific international exposition. *A. W. Earl and T. F. Chace. Il diags Eng N 74:112-15 J1 15 '15*
- Full-load secondary stresses in elevated-railway bents. *L. R. Manville. Eng N 74:949-51 N 11 '15*
- Heavy trusses and foundation girders used in steel bank building. *diags Eng Rec 71: 713-14 Je 5 '15*
- High stresses carried by heavy riveted truss. *Il diags Eng Rec 72:159 Ag 7 '15*
- How some problems in the New York elevated improvement work were solved. *Il diags Eng Rec 71:781-3 Je 19 '15*
- Interlocking steel construction. *Il Sci Am 113: 77 J1 24 '15*
- Large steel grandstand for automobile race-track, Sheepshead Bay, N. Y. *Il Eng N 74: 655 S 30 '15*
- Octagonal framed dome, San Francisco auditorium. *Il diags Eng N 73:773-5 Ap 22 '15*
- Pressed-steel building construction. *Il Eng N 73:1098 Je 3 '15*
- Rapid construction of additions to steel building; National cloak & suit company. *H. E. Miller. Il diags Eng Rec 71:404-5 Mr 27 '15*
- Rapid erection of steel coal breaker. *C. S. Phillips. Il Eng N 74:1-2 J1 1 '15*
- Rapid steel erection on third track work, Second avenue elevated, New York. *Il diags Eng Rec 71:86-7 Ja 18 '15*
- Results of recent tests of steel columns presented and discussed. *Eng Rec 71:649-50 My 1 '15*
- Section of New York elevated rebuilt under heavy traffic without an accident. *Il map Eng Rec 72:470-2 O 16 '15*
- Special details in reinforced concrete and steel building construction. *L. W. Bruck. Eng & Contr 44:143-4 Ag 25 '15*
- Stations for third track, New York elevated, placed above existing platforms. *Il diags Eng Rec 72:138-9 J1 31 '15*
- Steel column tests. *Eng Rec 71:574 My 8 '15*
- Steel construction for the Schenley theater, Pittsburgh. *C. N. Haggart. diags Eng N 73: 658-9 Ap 8 '15*
- Steel frame for a large electric sign. *diags Eng N 73:1071 Je 3 '15*
- Steel headframe at no. 9 shaft, Republic mine, Vulcan, Mich. *F. L. Burr. Il diags Eng & Min J 100:379-82, 480-5 S 4-11 '15*
- Stresses in a rigid frame of two columns and a truss; with table. *F. Freyhold. Eng N 73: 1081-3 My 27 '15*
- Structural features of Northwestern-mutual life insurance building, Milwaukee. *diags Eng Rec 71:205-7 F 13 '15*
- Structural steel supports for large steam turbines. *diags plan Eng N 73:66-9 Ja 14 '15*
- Typical and special construction used on Queens extension to New York elevated. *Il diags Eng Rec 72:76-8 J1 17 '15*
- Underrated contributor to steel construction; the detailer. *R. Fleming. Eng N 74:653-4 S 30 '15*
- Wind stresses in steel mill-buildings. *R. Fleming. diags Eng N 73:210-14 F 4 '15*
- Wind stresses in the steel frames of office buildings. *A. Smith. tables pls W Soc E J 20:341-64 Ap '15*
- Wind stresses in the steel frames of office buildings. *W. M. Wilson and G. A. Maney. tables Ill U Eng Exp Sta Bul 80:1-88 '15; Abstract. Eng Rec 72:231-2 Ag 21 '15*
- Wind stresses in the steel frames of office buildings; with discussion. *W. M. Wilson. tables pls W Soc E J 20:365-90 Ap '15*
- See also Bridges, Iron and steel; Building; Cars, Steel; Concrete construction; Corrosion and anti-corrosives; Elevated railroads; Girders; High buildings; Hoisting machinery; Office buildings; Painting, Structural; Strains and stresses; Strength of materials; Towers, Steel*
- Steel cutting**
- Special hardie cuts 20-inch steel pipe quickly. *H. F. Johnston. Eng Rec 71:469 Ap 10 '15*
- Steel hardening.** *See Steel, Hardening of*
- Steel houses.** *See Houses, Steel*
- Steel industry and trade**
- Billet prices for twenty-nine years. *Iron Age 95:12 Ja 7 '15*
- British India. *U S Sp Cons Rep 73:205-14 '15*
- British iron and steel trade in 1914. *Iron Age 95:144-5 Ja 14 '15*
- British steel and American competition. *Engineer 118:603 D 25 '14*
- Cambria steel company report for year ended December 31, 1914. *Iron Age 95:356-7 F 11 '15*
- Canada's reduced imports. *Iron Age 96:364-5 Ag 12 '15*
- Carnegie steel co. warehouse opens at Boston. *Il plan Iron Tr R 56:620-2 Mr 25 '15*
- Carnegie steel company's Boston warehouse, at Allston, Mass. *Il Iron Age 95:670-2 Mr 25 '15*
- Charts showing fluctuations in iron and steel prices for twenty years. *Iron Tr R 56:8a Ja 7 '15*
- Distribution of steel. *Met & Chem Eng 13: 270-1 My '15*
- Electric steel industry's present status. *Iron Age 95:94-8 Ja 7 '15*
- European iron and steel in 1914. *Eng & Min J 99:269-70 F 6 '15*
- Ford will build furnaces. *Iron Tr R 56:1297 Je 24 '15*
- French steel plants in war time. *F. Miltoun. Iron Age 95:940-2 Ap 22 '15*
- Full text of decision in the United States district court for the district of New Jersey. *Iron Tr R 56:1171-1218 Je 10 '15*
- Future of Germany's steel industry. *H. H. Campbell. Iron Age 96:188-9 J1 22 '15*
- Gain of ten furnaces. *Iron Age 95:1306-7 Je 10 '15*
- International steel trade situation. *Engineer 119:283-4 Mr 19 '15*
- Iron and steel prices for seventeen years. *Iron Age 95:16-17 Ja 7 '15*
- Iron and steel statistics. *F. Hobart. Eng & Min J 99:70-1 Ja 9 '15*
- Iron and steel wages and hours. *Iron Age 95: 1265 Je 3 '15*
- Iron, steel and coal in Dixie. *H. S. Chamberlain. Iron Tr R 56:176-8+ Ja 21 '15*
- New finance for steel and iron: how the new federal reserve system can be utilized. *I. F. Marcossou. Iron Tr R 56:9-15 Ja 7 '15*
- New German steel syndicate. *Iron Age 95:595 Mr 11 '15*
- Pittsburgh iron and steel markets. *B. E. V. Luty. map Eng & Min J 99:73-3 Ja 9 '15*
- Production of steel ingots, castings and finished materials in 1914. *Iron Tr R 57:325 Ag 12 '15*
- Progress in the iron and steel industry and the electric furnace. *K. G. Frank. Am Inst E E Pro 34:2547-54 O '15*
- Railroads place orders with Canadian company. *Iron Tr R 56:542-3, 578-80 Mr 18 '15*
- Railways and the steel companies. *Ry Age 58:682 Mr 26 '15*
- Retailing steel mill products. *Il Iron Tr R 56: 65-71 Ja 7 '15*
- Some aspects of the iron and steel industry in Europe. *U S Sp Cons Rep 71:1-43 '15*
- Steadying effect of carrying stocks. *Iron Age 94:1498 D 31 '14*
- Steel industry and a year of war. *E. Schrödter. Iron Age 96:828-9 S 16 '15; Same. Sci Am S 80:298 N 6 '15*
- Steel industry and export trade. *H. H. Campbell. Eng M 49:167-73 My '15*
- Steel industry and the war. *Met & Chem Eng 13:466-7 Ag '15*
- Steel production in 1914. *Iron Age 96:367-8 Ag 12 '15*
- Steel production in the United States, 1914. *Eng & Min J 100:283 Ag 14 '15*
- Steel statistics for 1914. *Eng & Min J 99:1072 Je 19 '15*
- Steel trade and the war. *El. T. Good. Iron Tr R 56:101-2 Ja 7 '15*
- Steel trade's poor year. *Met & Chem Eng 13: 7 Ja '15*
- Survey of events in England: effects of the great war on iron and steel. *J. Horton. Iron Tr R 56:54-6, 82 Ja 7 '15*

Steel industry and trade—Continued

- Under-advertising of the steel business. G: H. Jones. Eng M 50:357-63 D '15; Same cond. Iron Age 96:1025-7 O 28 '15
 United States steel corporation wins its suit. Iron Age 95:1299-1301+ Je 10 '15
 Wages and hours of labor in the iron and steel industry. table Mach 21:954 Ag '15
 War and the export trade. C. J. Stark. Iron Tr R 56:81-2, 90-4 Ja 7 '15
 Warehouse business requires speed. Iron Tr R 57:578-9 S 23 '15
 Why tool steel prices have gone up. E. C. Kreutzberg. Iron Tr R 57:987 N 18 '15

See also Iron industry and trade; Rolling mills; United States steel corporation

Steel ingots

- Aluminum as a check to sulphide segregation in steel ingots. Iron Age 96:130 J1 '15
 Bottom plates for pouring ingots. R. H. Irons. Iron Age 96:1221-2 N 26 '15
 Commercial production of sound, homogeneous steel ingots and blooms. E. Gathmann. Iron Age 96:104:1485-92 Ag '15; Same cond. Iron Age 96:310-11 Ag 5 '15; Same abr. Iron Tr R 57:305-6 Ag 12 '15; Discussion. Am Inst Min E. Bul 108:2511-12 D '15
 Control of piping and segregation in ingots. H: M. Howe. Iron Age 96:995-9; Discussion. E. F. Kenney. 96:999-1000 O 28 '15
 Displaced volume and power in rolling mills. F. Denk. Iron Age 96:288-90 Ag 5 '15
 How sulphides may exist in steel ingots. J. O. Arnold and G. R. Bolsover. Iron Tr R 57:737-8 O 14 '15; Discussion. G: F. Comstock. Iron Tr R 57:894+ N 4 '15
 Ingot mold with a vacuum chamber. diags Iron Age 95:1171 My 27 '15
 Is duplexing slated for assassination? J. I. Peyton. Iron Met & Chem Eng 13:397 Je '15
 Making sound steel commercially. E: F. Kenney. Iron diags Iron Tr R 57:349-55+, 397-400 Ag 19-26 '15; Same (pt 2). Iron Age 95:1343-6 Je 17 '15; Discussion. H: M. Howe. Iron Tr R 57:400+ Ag 26 '15
 Mechanical elimination of seams in steel products, notably steel rails. R. W. Hunt. Iron Age 94:1334-7 D 10 '14; Same. Iron Tr R 56:1073-6 D 10 '14; Same. Sci Am S 79:100-1 F 13 '15; Same cond. Eng N 72:1228-31 D 17 '14; Same cond. Eng Reg 70:636 D 12 '14; Same cond. Ry Age 57:1055-7 D 4 '14; Same cond. Ry R 56:85-8 Ja 16 '15; Same cond. Eng M 48:755-7 F '15; Discussion. Iron Age 94:1337-8 D 10 '14
 Methods of preventing piping in steel ingots; abstract. E. Gathmann. diag Met & Chem Eng 13:656 O 1 '15
 New ingot heating furnace. Iron diags Engineer 120:162-4 Ag 13 '15
 Non-conducting sinkhead for ingot molds. diag Iron Age 96:195 J1 22 '15
 Sound steel for rails and structural purposes. R. A. Hadfield. Iron J Fr Inst 179:119-40, 663-80 F. Je '15
 Sound steel ingots and rails. G: K. Burgess and R. A. Hadfield. Iron Inst Min E Bul 98:455-68 F '15; Same. Iron Age 95:346-8 F 11 '15; Same. Iron Tr R 56:369-72 F 18 '15; Same cond. Ry R 56:362-4 Mr 13 '15; Abstract. Engineer 119:494 My 14 '15; Discussion. Am Inst Min E Bul 101:1112-15 My '15; Discussion. Engineer 119:501-2 My 21 '15; Discussion. Met & Chem Eng 13:445-6 J1 '15
 Unsoundness in ladle test ingots. R. W. Hunt. Iron Tr R 57:1037-9 N 25 '15; Same. Iron Age 96:1303-5 D 2 '15
Steel metallurgy
 Acid open-hearth steel for castings. E. F. Cone. Iron Age 95:551-3 Mr 11 '15
 Comparative furnace efficiency. R. J. Weitlaner. Met & Chem Eng 13:357-61 Je '15
 Conserving the manganese in pig iron in making steel. Iron Age 96:930 O 21 '15
 Contributions of the chemist to the iron and steel industry. A. S. Cushman. J Ind & Eng Chem 7:934-5 N '15
 Contributions of the chemist to the steel industry. G: W. Sargent. J Ind & Eng Chem 7:932-4 N '15
 Cost of electric furnace steel; experience with the Snyder furnace. F. T. Snyder. Iron diags Iron Age 96:926-8 O 21 '15
 Duplex process of steel manufacture at the Maryland steel works. F. F. Lines. diags plan Am Inst Min E Bul 100:679-94 Ap '15; Same. Iron Age 95:730-3 Ap 1 '15; Same. Iron Tr R 56:676-9+ Ap 1 '15
 Effect of titanium alloys on steel. G: F. Comstock. Iron Tr R 57:391-5+ Ag 26 '15
 Electric furnace steels for dynamic stresses. J. E. Schipper. Iron diags Automobile 33:866-9 N 11 '15
 Electric steel. F. T. Snyder. Iron diags Iron Tr R 56:1077-82+, 1127-30+ D 10-17 '14
 Electric steel direct from ore fines. A. C. Dalton. Iron Age 96:1184-5 N 18 '15
 Electric steel furnace of new design; the Wile arc type. R. S. Wile. Iron diags Iron Age 96:866-8 O 14 '15
 Electrical steel by the acid process; abstract. A. Müller. Met & Chem Eng 13:640 S 15 '15
 Electro-metallurgical industries as possible consumers of electric power. D. A. Lyon and R. M. Keeney. Am Inst Min E Bul 104:1707-30 Ag '15; Excerpts. Iron Age 96:300-3 Ag 12 '15; Discussion. Am Inst Min E Bul 108:2503-7 D '15
 Furnace for making steel from ore. diags Iron Tr R 57:743+ O 14 '15
 Improved laboratory furnace. C: M. Johnson. Iron Tr R 56:613-14 Mr 25 '15
 Is duplexing slated for assassination? J. I. Peyton. Iron Met & Chem Eng 13:397 Je '15
 Making sound steel commercially. E: F. Kenney. Iron diags Iron Tr R 57:349-55+, 397-400 Ag 19-26 '15; Same (pt 2). Iron Age 95:1343-6 Je 17 '15; Discussion. H: M. Howe. Iron Tr R 57:400+ Ag 26 '15
 Making steel by electricity. diags Sci Am S 79:206-7 Mr 27 '15
 Making steel by the duplex process. S. S. Martin. diags Iron Age 95:76-8 Ja 7 '15
 Manufacture of electric steel in the Stobie furnace. V: Stobie. Engineer 119:616-17 Je 18 '15
 Occurrence and influence of nitrogen on iron and steel; abstract and discussion. N. Tschischewski. Iron Age 96:952-4 O 31 '15; Engineer 120:334-5 O 8 '15
 Open hearth versus the electric furnace in the manufacture of commercial steels. S. Cornell. Met & Chem Eng 13:630-1 S 15 '15
 Plant of the duplex process for making steel. J. K. Furst. diags plans Am Inst Min E Bul 94:2493-514 O '14; Same cond. Iron Age 94:882-6 O 15 '14; Discussion. Am Inst Min E Bul 100:310-12 Ap '15
 Steel making in the electric furnace. J. H. Gray. Iron Age 96:1238-9 N 25 '15; Excerpts. Met & Chem Eng 13:656-7 O 1 '15
 Technical progress in iron and steel in 1914. J. E. Johnson, Jr. Iron Age 95:19-23 Ja 7 '15
 See also Bessemer process; Iron metallurgy; Metallurgy; Open hearth process; Rolling mills; Steel, Hardening of; Steel, Heat treatment of; Steel castings; Steel industry; Steel ingots; Steel works

Exhibitions

- Steel making in tablet form; wall panel. Iron Age 96:416 Ag 19 '15
 Steel painting. See Painting, Structural
 Steel pipes. See Pipes, Steel
 Steel plates. See Plates, Iron and steel
 Steel poles. See Poles, Steel
 Steel rails. See Rails
Steel reinforcing bars
 Designing of reinforced concrete beams; some data tending to show errors in present theory and practice. L. J. Mensch. Eng & Contr 44:108-11 Ag 11 '15
 How design and methods of buying influence the cost of steel reinforcing bars. A. D. Mellor. Concrete Cem 6:184-5 Ap '15
 Tests for bond and electrolytic corrosion of painted reinforcing steel; abstract. H. A. Gardner. Iron Eng N 73:136-7 Ja 21 '15
 U-bolt splice in heavy reinforcing bars. T: C. Atwood. diags Eng N 73:218 F 4 '15
 See also Concrete, Reinforced
 Steel squares. See Square (instrument)

Steel storage

New steel warehouse of Joseph T. Ryerson & son, Jersey City. *Il* Iron Age 96:298-9 Ag 5 '15; Iron Tr R 57:270-1 Ag 5 '15

Steel tape

History of steel tapes. Eng N 72:1316-17 D 31 '14

Steel-tape repairs. *Il* Eng N 73:1130-1 Je 10 '15; Same cond. Eng & Min J 100:59-60 J 10 '15

Steel ties. See Railroad ties, Steel**Steel towers. See Towers, Steel****Steel works**

Alternating-current controllers for steel mills. A. Simon. *Il* diags Am Inst E E Pro 34:731-51 My '15; Same. Iron Tr R 57:477-81+, 527-9 S 9-16 '15; Abstract. Elec W 65:1195-6 My 8 '15

Apprentice work in steel plants. B. W. Gilson. Iron Tr R 55:1138+ D 17 '14

Association of iron and steel electrical engineers 9th annual convention. Elec R & W Elec'n 67:521-4 S 18 '15

Blast-furnace plant auxiliaries and general arrangement. J. E. Johnson, jr. plans Met & Chem Eng 13:495-9 Ag '15

Design features of the open hearth building of the Pennsylvania steel co., Steelton, Pa. diags plans Eng & Contr 42:602-4 D 30 '14

Development of the merchant rolling mill. J. R. George. *Il* diags Iron Tr R 56:1125-8+ Je 3 '15; Same. Iron Age 95:1282-6 Je 10 '15

Duplex process of steel manufacture at the Maryland steel works. F. F. Lines. diags plan Am Inst Min E Bul 100:879-94 Ap '15; Same. Iron Age 95:730-3 Ap 1 '15; Same. Iron Tr R 56:875-9+ Ap 1 '15

Engines and rolling mills in steel works of the Brier Hill steel co., Youngstown, O. *Il* Engineer 119:229-30 Mr 5 '15

Galveston Carnegie warehouse. E. C. Kreutzberg. *Il* Iron Tr R 56:169-70+ Ja 21 '15

Gas and steam engines and the turbine. J. E. Johnson, jr. Iron Age 95:626-9 Mr 18 '15; Same. Sci Am S 79:294-5 My 8 '15

Germany's grip on French steel works. E. Schröder. Eng M 49:733-4 Ag '15

Heating an open-hearth furnace by tar. A. Greiner. Iron Age 95:1072-3 My 13 '15; Same. Iron Tr R 56:1017-18 My 20 '15

Homestead repair shops. *Il* plan Iron Tr R 56:659-65 Ap 1 '15

How to select your prime mover. G. Fisk. Iron Tr R 57:569-72+ S 23 '15

Industrial growth in the Cleveland district: new metal-working plants. Iron Age 95:98-9 Ja 7 '15

Low-pressure turbines in steel mills. F. G. Cutler. Power 40:327-8 D 3 '14

Mill controllers. H. F. Stratton. Am Inst E E Pro 34:599-614 Ap '15; Same. Iron Tr R 56:820-4 Ap 22 '15; Abstract. with discussion. Elec R & W Elec'n 66:778-80 Ap 24 '15; Discussion. Am Inst E E Pro 34:2869-94 N '15

Modern steel plant at Massillon. *Il* diags plan Iron Tr R 56:83-7 Ja 7 '15

New iron and steel works construction. Iron Age 95:30-2 Ja 7 '15

Newcastle steel works, New South Wales. *Il* Engineer 120:223-4, 226 S 3 '15

Pennsylvania's rail and structural mill at Steelton. *Il* plan Iron Age 96:617-22 S 16 '15

Plant of the duplex process for making steel. J. K. Furst. diags plans Am Inst Min E Bul 94:2498-514 O '14; Same cond. Iron Age 94:883-6 O 15 '14; Discussion. Am Inst Min E Bul 100:810-12 Ap '15

Purchased power for the steel mill; economic advantages of central station current. C. S. Lankton. Iron Tr R 57:573-5 S 23 '15

Resicza steel works, a likely war goal. *Il* Iron Age 96:516-18 S 2 '15

Rush work at Minnesota steel plant, Duluth. *Il* Iron Tr R 57:538-8 S 23 '15

Sheet bar and special steel plant: Central steel company, Massillon, Ohio. *Il* diags plans Iron Age 95:52-5 Ja 7 '15

Shops for repair purposes at Gary. *Il* plan Iron Tr R 56:277-81+ F 4 '15

Six etchings of European iron and steel works. J. Pennell. Iron Tr R 56:57-64 Ja 7 '15

Steel plant in southern California; oil-burning open-hearth furnace. *Il* Iron Age 95:1110-12 My '15

Steel plant repair system. B. D. Quarrie. Iron Age 94:1316-17 D 3 '14

Trumbull steel co. doubles capacity of sheet plant. R. V. Sawhill. *Il* Iron Tr R 56:321-5+ F 11 '15

Waste-heat boilers in steel plants. C. J. Bacon. diags Iron Age 95:1849-52 Je 17 '15; Abstract. Iron Tr R 56:1123-4 Je 3 '15

Water-cooled equipment for sheet mills. *Il* diags Iron Age 95:441-3 F 25 '15

See also Rolling mills

Steeple. See Towers

Stefánsson, Vilhjálmur, 1879-

Stefánsson's new found land. H. J. Spinden. *Il* map Sci Am 118:289+ O 2 '15

Steinmetz, Charles Proteus, 1865-

Next president of illuminating engineering society. *por* Elec W 65:1572-3 Je 13 '15

Portrait. Elec R & W Elec'n 66:1185 Je 12 '15

Stellite

Brading stellite to machine steel. Mach 21:421 Ja '15

Stellite, a cobalt-chromium alloy of great hardness. E. Haynes. Eng & Min J 100:711 O 30 '15

Stencils and stencilling

Outgrowths of letterpress; stenciled and applique pennants. G. Sherman. *Il* Inland Ptr 55:177-82 My '15

Stereochemistry

Interpretations of some stereochemical problems in terms of the electronic conception of positive and negative valences. H. S. Fry. Am Chem Soc J 37:855-92 Ap '15

See also Atoms; Chemistry, Physical; Isomerism

Stereopticon

Novel dissolving picture-projecting apparatus. R. G. Skerrett. *Il* Sci Am 112:612 Je 19 '15

Stereoscopic telemeter

Measurement of distances in war. A. Keller. *Il* diags Sci Am S 79:324-5 My 22 '15

Stereoscopic views

Anaglyphs. Sci Am 113:63 J 17 '15

Superposed stereoscopic pictures that need no stereoscope. Sci Am 113:210 S 4 '15

Stereotyping

Rivett fong machine. A. W. Birdsall. *Il* Inland Ptr 55:95-6 Ap '15

Syndicate stereotyping. A. W. Birdsall. Inland Ptr 54:360 D '14

See also Electrotyping

Stevens bill

Bill for block signals, automatic stops, steel cars, headlights and investigations. Ry R 56:125-7 Ja 23 '15

Stevens Institute of technology

Contributions of Stevens tech to the welfare and progress of the country. F. D. Furman. Stevens Ind 32:31-47 Ja '15

Stevens in history. J. H. Cuntz. Stevens Ind 32:19-30 Ja '15

Student life at Stevens. R. F. Homhan. Stevens Ind 32:57-63 Ja '15

Stillman, Thomas Bliss, 1852-1915

Sketch. F. J. Pond. *por* J Ind & Eng Chem 7:804-5 S '15

Stills. See Distillation**Stock cars**

End construction of Canadian Pacific stock cars. diags Ry Age (Mech ed) 89:29-30 Ja '15

Thirty-ton stock car for the Canadian Pacific Ry. R. W. Burnett. *Il* diag Ry R 56:686-7 D 5 '14

Stock yards

See also Chicago—Stock yards

Stockings. See Hosiery

Stockpile trestle of wood. O. Gustafson. *Il* diags Eng & Min J 98:1008-4 D 5 '14

Stockroom records

Handling stock by systematic methods. *Il* Metal Work 82:810-12 D 18 '14

Stocks

Discount on stock. S. Walton. J Account 20:238-41 S '15

Treasury stock. S. Walton. J Account 19:892-7 My '15

Stokers, Mechanical

- Automatic chain grate stokers. *Il* diags Eng M 50:sup5-7 O '15; Elec W 66:1106 N 13 '15
- Characteristics of automatic stokers. R. J. S. Piggott. *Ind Eng* 15:18-14 Ja '15
- Coal and air regulation with stokers. W. D. Lewis. *Power* 42:633 N 16 '15
- Coking coal chain stoker. *Il* Iron Age 95:1230-1 Je 10 '15
- Comparative tests of stoker- and hand-fired boilers. H. S. Knowlton. *Il* Power 41:300-1 Mr 2 '15
- Hanna locomotive stoker. *Il* diags Ry R 56:770-1 Je 5 '15
- Kokomo underfeed stoker. *Il* diags Power 42:195 Ag 10 '15
- Locomotive boiler design and mechanical stokers. Engineer 120:156 Ag 13 '15
- Locomotive stokers: American railway master mechanics' association committee report. Ry R 56:307 Je 12 '15
- Mechanical fireman; Kincaid stoker. *Il* diag Colliery 36:109-10 S '15
- Mechanical stokers; committee report of International railway fuel association. Ry Age 58:1113-14 My 28 '15; Same. Ry Age (Mech ed) 89:277-80 Je '15
- Mechanical stokers for locomotives. Power 41:827 Je 15 '15
- Mechanical stokers on American locomotives. Engineer 119:42-3, 60-1, 116-17, 163 Ja 8-15, 29, F 12 '15
- Mechanical stoking of locomotives; with discussion. W. S. Bartholomew. *Il* diags J F R Inst 180:253-310 S '15
- New Kincaid stoker. *Il* diag Power 41:42-3 Ja 12 '15
- Nosmoke chain-grate stoker. *Il* diags Power 42:19-20 J 6 '15
- Reducing costs with mechanical stokers. C. C. Brinley. *Il* Eng M 50:276-92 N '15
- Relation of mechanical stokers to the fuel problem. Ry R 56:700-1 My 22 '15
- Side-feed stokers. O. Monnett. diags Power 40:802-4 D 8 '14
- Stationary boiler stoker. *Il* Iron Age 95:136 Ja 14 '15
- Stoker for scientific firing. *Il* Iron Tr R 56:127-4 Ja 14 '15
- Tests on a recent type of chain grate stoker and new method of baffling Stirling boilers. J. A. Hunter. diags Eng Soc W Pa 31:1-10; Discussion. 31:10-55 F '15; Abstract. Am Soc M E J 37:348-51 Je '15
- Traveling-grate stoker with revolving disk grate bars. *Il* Elec W 66:437 Ag 28 '15
- Underfeed stoker. *Il* Elec W 65:950 Ap 10 '15
- Underfeed stokers. J. Van Brunt. diag Power 41:132 Ja 26 '15
- Underfeed stokers. O. Monnett. diags Power 40:338-40 D 15 '14
- Westinghouse underfeed stoker. *Il* diags Power 40:341-2 D 15 '14
- What the stoker has done for the locomotive: discussion. C. F. Street. Ry R 56:69 Ja 9 '15; Same. Ry Age 58:59 Ja 8 '15; Same cond. Am Soc M E J 37:32-3 Ja '15; Same cond. Ry Age (Mech ed) 89:11 Ja '15
- What the stoker has done for the locomotive: discussion. E. A. Averill. Ry Age 58:59-61 Ja 8 '15; Same cond. Am Soc M E J 37:33-4 Ja '15; Same cond. Ry Age (Mech ed) 89:11-12 Ja '15
- Stone**
- Itakolumitto, a flexible stone. Sci Am 113:312 Ap 3 '15
- Removing stains from stonework. Bldg Age 37:41 My '15
- See also Building stones; Granite; Limestone; Quarries and quarrying
- Stone, Concrete. See Concrete stone
- Stone bridges. See Bridges, Stone
- Stone lands**
- United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 1308-33 '15
- Stone pavements. See Pavements, Stone
- Stopcocks**
- Street stop-cock of the Boston water-works department. G. H. Finneran. diags Eng N 73:77 Ja 14 '15

Vacuum and pressure stopcocks. M. Randall and F. R. V. Bichowsky. diags Am Chem Soc J 37:137-44 Ja '15

Stoping methods. See Mining engineering

Storage. See Stores systems

Storage batteries

- A. C. service from battery. J. A. Walton. diags Elec W 66:975-6 O 30 '15
- Battery-exchange service in Boston. Elec R & W Elec'n 67:105 J 17 '15
- Battery reserve in an alternating-current system. diags Elec W 66:465-6 Ag 28 '15
- Dry storage battery. *Il* Elec R & W Elec'n 67:682-3 O 9 '15
- Edison storage battery ruggedness. *Il* Elec R & W Elec'n 67:646-7 O 2 '15
- Edison submarine boat storage battery. H. T. Wade. *Il* Sci Am 112:450-4 My 15 '15
- Effect of porosity on the output of storage batteries; abstract. C. Heim. Elec W 66:300 S 11 '15
- Information on storage battery care. diag Automobile 32:371-2 Ap 15 '15
- Low-gravity cutoff for storage battery. W. E. Dixon. diag Power 41:720 My 25 '15
- Modern submarines in war and peace. S. Lake. Int Marine Eng 20:502-3 N '15
- Nickel-iron-alkaline cells for high-discharge-rate and submarine service. *Il* diag Elec W 66:1103-4 N 13 '15
- Smashing point of storage battery. Elec R & W Elec'n 66:79 Ja 9 '15
- Smelting storage-battery sediment. W. C. Smith. Eng & Min J 100:18 J 3 '15
- Storage batteries for handling peak loads. E. Brown. Power 41:470-1 Ap 6 '15
- Storage batteries for radio service. Elec R & W Elec'n 66:562 F 20 '15
- Storage battery for electric plants. J. F. Springer. *Il* Munic J 37:915-17 D 24 '14
- Storage battery serving combined alternating-current and direct-current system. *Il* plan Elec W 65:1305-6 My 22 '15
- Storage-battery voltage regulation. C. S. Redding. *Il* diags Elec W 65:1134-5 My 1 '15
- Submarine power plant. A. Hoar. *Il* Sibley J 30:59-63 N '15
- Unused storage battery should have care. Automobile 32:716-17 Ap 22 '15
- See also Electric batteries

Bibliography

- List of works relating to storage batteries, 1900-1915. G. S. Maynard. N Y Pub Lib Bul 19:365-407 Ap '15

Charging

- Auxiliary equipment for charging one to twenty cells. *Il* diag Elec W 65:159 Ja 16 '15
- Charging batteries from 120-volt circuit. Horseless Age 35:30 Ja 6 '15
- Charging small storage batteries. G. E. Miles. diags Power 41:757 Je 1 '15
- Constant-potential charging system effects saving in Chicago garage. *Il* Elec W 65:865-6 Ap 3 '15
- Constant-potential charging system in Chicago. *Il* Elec R & W Elec'n 66:277-8+ F 6 '15
- Construction of a vibrating rectifier for charging automobile ignition batteries. G. Fraasa. diags Sci Am S 80:108-9 Ag 14 '15
- Control-board for series-parallel battery charging. *Il* Elec R & W Elec'n 67:686 O 9 '15
- Electric charging equipment in the new plant of the Ward bread company, Boston. *Il* Elec R & W Elec'n 66:58+ Ja 2 '15
- Home-made charging panel for small batteries. *Il* Elec W 66:591-2 S 11 '15
- How to pick the positive for battery charging. F. I. Hoffman. Horseless Age 35:278+ S 15 '15
- Large charging installation for Cambridge (Mass.) bakery. *Il* Elec W 65:239 Ja 23 '15
- Low-voltage battery-charging device. *Il* diag Elec W 65:437 F 18 '15
- Small battery-charging outfits for automobile ignition and lighting batteries. *Il* Elec R & W Elec'n 67:300-1 Ag 14 '15; Elec W 66:422-3 Ag 21 '15
- Small mercury-vapor rectifier for charging automobile lighting batteries. *Il* Elec R & W Elec'n 66:1010 My 29 '15

Storage batteries—Charging—Continued

Storage battery charging—magnet recharging. P. M. Heldt. *Il diags Horseless Age* 35:442-3 Mr 31 '15
Winding for magnet chargers—charging storage batteries. Horseless Age 35:143 Ja 27 '15

Manufacture

Lead poisoning in manufacture of storage batteries; abstracts. A. Hamilton. Horseless Age 35:480 Ap 7 '15; Elec R & W Elec'n 66:1036 Je 5 '15; Eng M 49:442 Je '15

Storage battery cars. See Motor cars (railroad)—Storage battery

Storage battery locomotives. See Electric locomotives

Storage racks

Making rack for storage of sheet metal. diags Metal Work 88:313-14 F 36 '15
Miscellaneous stands for use in the foundry. A. Hill. diags Foundry 43:301-3 Ag '15
System of flexible, fireproof storage racks. *Il Ind Eng* 14:417 N '14

Store fronts

Store front of Hanan & son, Boston. *Il plan Arch & Bldg* 47:144-7 Ap '15

Stores

Group of village stores at Chatham, Mass.; views and plans. Brickb 24:259-60 O '15

See also Department stores; Store fronts

Stores, Cooperative. See Cooperation

Stores systems

Efficiency in the stores department. W. G. Astle. *Il Elec Ry J* 46:906-10 O 30 '15

Part number system for manufacturers. C. E. Fairbanks. *Ind Eng* 15:15-16 Ja '15

Perpetual inventory in practical stores operation. J. B. Green. *Eng M* 48:379-88 Mr '15

Positive identification of tool steels. *Iron Age* 96:200 JI 22 '15

Precedent versus progress in the stores department. G. G. Yeomans. *Ry Age* 59:237-3 Ag 6 '15

Railroading from a general storekeeper's point of view. J. G. Stuart. *Ry R* 57:700-2 N 27 '15

Signal and supply departments. C. R. Ahrens; R. D. Long; A. G. Shaver. *Ry R* 57:120-4 JI 24 '15

Storeroom organization and management; mnemonic symbolizing. W. G. Astle. *Il Iron Age* 96:457-60 Ag 26 '15; Same. *Metal Work* 84:332-4 S 10 '15

System in a factory stock department. G. H. Culver. *Il Eng M* 49:174-83 My '15

Systematic purchase and care of mill supplies. E. C. Church. *Textile World* 49:207-9 My '15

See also Pattern storage; Storage racks

Storm King highway

Storm King highway, New York. H. E. Breed. *Il map Eng N* 74:721-4 O 14 '15

Storms

Cincinnati buildings suffer from wind storm. C. M. Stegner. *Il map Eng N* 74:140-2 JI 16 '15

See also Hurricanes; Rain; Thunderstorms; also Galveston, Texas—Hurricane, 1915; New Orleans—Hurricane, 1915

Stove foundry's national defense association

Annual meeting, New York city, May 11. *Metal Work* 88:744 My 21 '15

Stove manufacturers, National association of. See National association of stove manufacturers

Stove plates

Grinding and polishing stove plate trimmings. F. W. Hobbs. *Foundry* 43:236-7 Je '15

Stoves

Cooking and heating stoves in foreign countries. U S Sp Cons Rep 63:1-63 '14

First American heating stove. diags Am Gas Light J 103:33 JI 19 '15

Heating systems in the United Kingdom; open-grate fire vles with coal and wood stove. *Metal Work* 83:697-8 My 14 '15

Lecture on stoves. W. H. Perkins. *Metal Work* 82:801 D 18 '14

Stove trade to honor Benjamin Franklin. *Il Metal Work* 84:38-9 JI 16 '15

Stoves in Argentina. *Metal Work* 83:536 Ap 9 '15

Test on melting shot iron in the cupola; experiment in a stove foundry. G. B. Pickup. *Il Foundry* 42:467-8 D '14

See also Electric stoves; Gas stoves; Heating

Stoves, Blast furnace. See Blast furnace stoves

Straightening

Cold straightening of rails. R. W. Hunt. *Ry Age* 59:726 O 22 '15

Straightening a tall leaning factory chimney by a new method. T. S. Clark. diags *Eng N* 73:266-7 F 11 '15

Straightening machines

Axle and armature-shaft straightener. J. N. Graham. diags *Elec Ry J* 46:238-9 Ag 7 '15

One pass straightening machine. *Il Iron Tr R* 56:919 My 6 '15

Strainers

Motor-operated twin strainer. *Il Power* 41:3-9 Ja 5 '15

Strainometers

Universal strainometer of simple design. S. H. Graf. *Il Iron Age* 96:134-5 JI 15 '15

Strains and stresses

Allowing for impact in bridge calculations. J. D. W. Ball. diags *Engineer* 120:151-3 Ag 13 '15

Analysis of stresses in Chicago elevated steel car. H. A. Johnson. diags *Elec Ry J* 44:1299-1300 D 12 '14

Behaviour of metals under stress. F. C. A. H. Lentsberry. *Engineer* 119:63 Ja 15 '15

Calculation of centrifugal stresses in turbine rotors; abstract. W. Kerr. *Am Soc M E J* 37:298-9 My '15

Chart of equivalent uniform loads for railway bridges. D. B. Steinman. *Eng N* 73:780-2 Ap 22 '15

Convex and concave drum heads. D. Hogan. *Power* 41:450 Mr 30 '15

Data on the strength and elastic properties of concrete-filled pipe columns. F. W. Swain and A. F. Holmes. *Eng & Contr* 44:134-5 S 8 '15

Design methods in concrete construction. J. Cochran. *Concrete Cem* 6:33-4, 83-5, 145-3, 190-2 Ja-Apr '15

Design of beams, girders and trusses. E. McCullough. diags *Bldg Age* 36:27-8 JI; 33-4 Ag; 29-30 S; 37-9 O; 37-9 N; 27-9 D '14; 37:39-41 Ja; 31-3 F; 27-8 Mr; 49-50 Ap; 49-50 My; 47-8 Je; 45-6 JI; 27-8 Ag; 29-30 S; 37-8 N; 51-2 D '15

Design of rectangular concrete beams. H. Harding. *Am Soc M E J* 37:529-31 S '15

Designing a steel dome for the horticultural palace at the Panama-Pacific international exposition. A. W. Earl and T. F. Chace. diags *Eng N* 74:208-12 JI 29 '15

Designing of reinforced concrete slabs subjected to bending and compression. A. Bull. *Eng & Contr* 43:454-6 My 19 '15

Determination of stresses in and design of cast iron lining for subaqueous tunnels. P. A. N. Seurot. diags *Eng & Contr* 43:90-2 F 3 '15

Determining the stresses in an offset beam. W. L. Cathcart. *Mach* 21:872 Ap '15

Diagram for net section of riveted tension members. T. A. Smith. *Eng N* 73:393 My 6 '15

Eccentric heel joint of roof truss: solution of problem. E. H. Rockwell. *Eng N* 74:796-8 O 21 '15

Economic design of concrete slabs. J. N. Jensen. *Eng Rec* 71:170-1 F 6 '15

Effect of the end connections on the distribution of stress in certain tension members. C. Batho. *Il diags J Fr Inst* 180:129-72 Ag '15; Abstract. *Am Soc M E J* 37:561-2 S '15; Abstract (Tests prove lug angles valueless for insuring uniform stress distribution). *Eng Rec* 72:512-14, 608 O 23, N 13 '15

Effects of quenching mediums. H. V. Wille. *Il Iron Tr R* 57:93-4 JI 8 '15; Same cond. *Iron Age* 96:190-1 JI 22 '15

Elastic curve applied to the design of the Scotoville bridge. D. B. Steinman. *Eng Rec* 72:258-60 Ag 28 '15

Endurance of metals under repeated stresses; some new facts, and a new method of testing. diags *Locomotive* 30:130-42 Ja '15

Strains and stresses—Continued

- Equivalent uniform loads for long-span bridges. D. B. Steinman. Eng N 73:370 F 25 '15
- Experiments to determine stresses in parts of rope falls. C. S. Adams. Eng Rec 72:425-6 O 2 '15
- Experiments to determine the forces imposed on a truck side frame and the stresses produced. L. E. Endsley. II diag Ry R 56:460-3, 494-7 Ap 3-10 '15; Same cond. Ry Age (Mech ed) 89:127-9 Mr '15
- Failure of materials under repeated stress; abstract. F. H. Moore and F. B. Seeley. Iron Age 96:22-3 Jl 1 '15
- Failure of structural brasses. P. D. Merica and R. W. Woodward. Metal Ind n s 13:459-61 N '15 (to be cont)
- Fixing the elastic limit standard. T. D. Lynch. II Iron Tr R 57:70-81+ Jl 8 '15
- Full-load secondary stresses in elevated-railway bents. L. R. Manville. Eng N 74:949-51 N 11 '15
- Generalized form of Hooke's law. E. R. Hedrick. Eng N 74:542-3 S 16 '15
- Graphical analysis of arches with fixed ends greatly simplified. C. S. Whitney. Eng Rec 72:324-6 S 11 '15
- Is a part stronger than the whole? R. Fleming. diag Eng N 74:1026-7 N 25 '15
- Lateral flexure of hollow pieces; abstract. H. Lossler. diag Am Soc M E J 37:287-8 My '15
- Lateral stresses on rails in curved tracks. G. L. Fowler. II Ry Age 59:319-22 Ag 20 '15
- Magnetic studies of mechanical deformation in certain ferromagnetic metals and alloys. H. Hanemann and P. D. Merica. II Am Inst Min E Bul 108:2371-85 D '15
- Maximum stresses in tension reinforcement. M. J. Lorente. Eng & Contr 42:366 O 14 '14
- Mechanics of reinforced concrete under flexure in beam and slab types. C. A. P. Turner. Boston Soc C E J 1:383-94 S '14; Discussion. 1:499-508; 2:23-47 N '14, Ja '15
- Moments at eccentric heel-joint of roof truss. E. Godfrey. Eng N 74:399 Ag 26 '15
- Nomographic charts for simple beam design. C. D. Conklin, Jr. Eng Rec 71:809 Je 26 '15
- Nomographic solutions for formulas of various types. R. C. Strachan. Eng Rec 71:807-9 Je 26 '15
- Pressures on piles supporting masonry. R. P. V. Marquardsen. diag W Soc E J 20:541-7 Je '15; Same. Eng & Contr 44:392-3 N 17 '15
- Ratio of circumferential to longitudinal stresses in boiler joints. J. K. Linderhurst. Power 41:611-12 My 4 '15
- Reactions in a three-legged stiff frame with hinged column bases; with discussion. N. M. Stineman. W Soc E J 19:881-920 N '14
- Rectangular pressure vessels. H. J. Vander Eb. Locomotive 30:164-9 Ap '15
- Reinforced-concrete conduit analysis simplified by theory of displacements. C. S. Whitney. Eng Rec 72:486-8 O 16 '15
- Results of some tests of I-beam connections. C. S. Whitney. diag Eng & Contr 44:35-7 Jl 14 '15
- Secondary stresses and other problems in rigid frames: a new method of solution. G. A. Maney. diag Minn U Bul 1:1-17 '15
- Seventy-nine-ton derrick car lowers itself 60 feet in twenty-five minutes. A. S. Beale. II Eng Rec 72:78-9 Jl 17 '15
- Shear in beams. E. Jonson. Eng Rec 71:25 Ja 2 '15
- Shrinkage and time effects in reinforced concrete. F. R. McMillan. II Minn U Bul 3:1-41 '15; Abstracts. Eng N 73:502-3 Mr 11 '15; Eng Rec 73:251-2 Ag 28 '15; Eng & Contr 44:306-10 O 20 '15
- Simple method of determining the stresses in concrete arches due to temperature and rib shortening. H. R. Thayer. Eng & Contr 44:173-4 S 1 '15
- Special methods of reinforced concrete design; with discussion. M. J. Lorente. diag Boston Soc C E J 2:205-32 S '15
- Steel headframe at no. 9 shaft, Republic mine, Vulcan, Mich. F. L. Burr. II diag Eng & Min J 100:430-5 S 11 '15
- Stress analysis of the Chicago steel car. E. W. Rettger and S. G. George. Elec Ry J 45:291-2 F 6 '15
- Stress distributions in engineering materials; report to the British association. Engineer 120:354-5 O 8 '15
- Stresses in a rigid frame of two columns and a truss; with table. F. Freyhold. Eng N 73:1031-3 My 27 '15
- Stresses in convex heads. F. F. Couch. diag Power 42:675-7 N 16 '15
- Stresses in convex heads. F. G. Gasche. Power 41:59 Ja 12 '15
- Stresses in convex heads. H. J. Vander Eb. Power 40:817-18 D 8 '14
- Stresses in steam pipes. S. U. Tuspín. Elec W 63:926-7 Ap 10 '15
- Stresses in the mine roof. R. D. Hall. diag Am Inst Min E Bul 105:203-21 S '15
- Stresses in the Panama canal cranes. Eng N 74:86-8 Jl 8 '15
- Struts and tie-rods in motion; abstract. H. Mawson. Am Soc M E J 37:659-60 N '15
- Sudden cooling of boilers in cases of low water. R. N. Blackburn. Power 42:696-8 N 16 '15
- Tie-rods for floor arches; a criticism of current practice. F. N. Kneass. diag Eng N 73:518-19 Mr 18 '15
- Torsion strength of reinforced concrete beams. Am Soc M E J 37:49-50 Ja '15
- Torsional strengths of guy anchor rods. T. Croft. diag Elec W 65:1607-9 Je 19 '15
- Tower of Jewels at exposition a 435-foot skyscraper on two-hinged arches. F. S. M. Harris. II diag Eng & Contr 43:47-54 Ja 20 '15; Same cond. Eng Rec 71:112-16 Ja 23 '15; Same cond. Eng N 73:806-72 My 6 '15
- Wind stresses in skew bridges. J. P. J. Williams. Eng N 73:622-6 Ap 1 '15
- See also* Arches; Bridge design; Bridges; Building; Columns; Earth pressure; Elasticity; Girders; Graphic statics; Rails—Stresses; Riveting; Roofs; Strength of materials; Torque; Trusses; Wind pressure
- Strassburg, Alsace**
- Dual ownership of public utilities in Alsace. M. A. Jewett. Munic. Eng 49:65-6 Ag '15
- Stream flow**
- Long-term variations in stream flow, Croton and Hudson rivers. E. H. Sargent. Eng N 72:1119 D 3 '14
- See also* Stream measurement; Water flow
- Stream measurement**
- Collection and use of stream discharge data in Pennsylvania. R. A. Boehringer. Eng Rec 71:109-10 Ja 23 '15
- Diagram for estimating flow in channels and conduits. G. D. Fish. Eng N 73:732-4 Ap 15 '15
- High coefficients of roughness for natural river channels. R. E. Horton. Eng N 73:827-8 Ap 29 '15
- Relation of stream gaging to the science of hydraulics; abstract. C. H. Pierce and R. W. Davenport. Am Soc M E J 37:814 O '15
- Small automobile opens up new opportunities in government stream gaging work. E. A. Porter. II Eng Rec 71:490-1 Ap 17 '15
- Stream gaging by titration; comparative tests of new chemical and standard mechanical methods of gaging stream flow. L. W. Collet, R. Mellet and O. Lütshg. diag plans Eng & Contr 42:270-3 S 16 '14
- Street accidents**
- Diminished illumination and accidents in the streets. Illum Engr 8:300-1 Jl '15; Same cond. Am Gas Light J 103:88 Ag 9 '15
- London traffic dangers. Sci Am S 79:213 Ap 3 '15
- See also* Automobile accidents; Street railroads—Safety devices and measures
- Street car lighting. See Car lighting**
- Street cars**
- Albany service order. Elec Ry J 46:334-5 Ag 21 '15
- All-service cars for East Liverpool. II plan Elec Ry J 45:765-6 Ap 17 '15
- All-steel one-man car. II Elec Ry J 46:72-3 Jl 10 '15
- Balanced door-operating mechanism. J. Sutherland. II Elec Ry J 45:1038-9 My 29 '15
- Bay State combination car. II diag Elec Ry J 46:854-7, 1068-73 O 23, N 27 '15
- Bolts and screws. Elec Ry J 46:449-50 S 11 '15

Street cars—Continued

Car-door operation with sprocket chain and worm shaft. J. N. Lloyd. *Il Elec Ry J 45:590-1 Mr 20 '15*
 Car maintenance records at Los Angeles. *Elec Ry J 45:1214-15 Je 26 '15*
 Center-entrance cars for Wilkes-Barre, Pa. *Il Elec Ry J 45:518 Mr 13 '15*
 Convertible car for general service. *Il Elec Ry J 46:71 Jl 10 '15*
 Converting open cars into the end-entrance type. A. C. Colby. *Il plan Elec Ry J 46:451-2 S 11 '15*
 Correct-posture seats. *Il diags Eng M 49:588 Jl '15*
 Development of a light, low-floor car for San Francisco. J. M. Yount. *Il Elec Ry J 46:515 S 18 '15*
 Dubuque remodels cars for one-man operation. *Il plan Elec Ry J 46:1090 N 27 '15*
 Economies in operating small cars. J. F. Layng. *Elec Ry J 45:279-80 My 22 '15*
 Economies of the light car and of ball bearings. A. V. Farr. *Elec Ry J 46:239-40 Ag 7 '15*
 Experience with the one-man electric car in a small city. R. M. Howard. *Il Elec Ry J 45:233-4 Ja 30 '15*
 Experimental open-car reconstruction in Atlantic City. G. E. Faber. *Il diags Elec Ry J 46:110-11 Jl 17 '15*
 Front entrance, center-exit car for Cleveland. *Il plan Elec Ry J 45:364-6 F 20 '15*
 Front exit Glasgow double-deck car with folding step. *Il plan Elec Ry J 45:297-8 F 6 '15*
 Helical springs. *Elec Ry J 46:409-10 S 4 '15*
 Improvements in the low-floor car. *Il diags Elec Ry J 46:4-7 Jl 3 '15*
 Inclosed prepayment cars for Baltimore. *Il diags Elec Ry J 45:86-9 Ja 9 '15*
 Kansas City's new cars. R. L. Weber. *Il Elec Ry J 46:771-2 O 9 '15*
 Los Angeles illuminated end destination sign with car and run numbers. E. L. Stephens. *Il Elec Ry J 45:1169 Je 19 '15*
 Low-floor California-type car. W. B. Farlow. *Il Elec Ry J 45:1016-18 My 29 '15*
 Making the standees comfortable. *diags Elec Ry J 46:26 Jl 3 '15*
 Manual and pneumatic door and step control. *Il Elec Ry J 46:958-60 N 6 '15*
 New cars for Kansas City. *plans Elec Ry J 45:850-1 My 1 '15*
 New cars for New Orleans. *Il plan diags Elec Ry J 45:270-4 F 6 '15*
 New cars of Seattle municipal railway. H. J. Kennedy. *Il diag Elec Ry J 44:1284-6 D 12 '14*
 New York municipal car—brakes and auxiliaries. *Il diags Elec Ry J 45:872-80 My 8 '15*
 New York municipal car—motors, control, conduit and collectors. *Il diags Elec Ry J 45:496-503 Mr 13 '15*
 New York municipal car—the lighting. W. G. Gove. *Il Elec Ry J 45:614-18 Mr 27 '15*
 New York municipal car—trucks, brake rigging and draft gear. *Il diags plan Elec Ry J 44:1376-81 D 26 '14*
 One-man car as an effective means of reducing headway. G. A. Richardson. *Elec Ry J 46:572 S 18 '15*
 One-man cars in Anniston, Ala. A. L. Kenyon. *Elec Ry J 46:1035 N 20 '15*
 Quick-acting adjustable seat for motormen. *Il Elec Ry J 46:114 Jl 17 '15*
 Route signs for surface cars. *Il Elec Ry J 46:260-2 Ag 14 '15*
 Scientifically designed car seats. *Il diag Eng N 73:24 Ja 7 '15*
 Small car versus the large car. D. C. Hersherberger. *Elec Ry J 46:394-5 S 4 '15*
 Standardization of twelve car types into two at Los Angeles. E. L. Stephens. *Il Elec Ry J 46:493-5 S 18 '15*
 Steel cars in city service. *Il Elec Ry J 46:405-6 S 4 '15*
 Steel underframe, open-bench car. *Il diags Elec Ry J 45:1171-2 Je 19 '15*
See also Car houses; Car trucks; Car wheels; Cars; Electric railroads—Rolling stock; Street railroads

Cleaning

See Car cleaning

Heating

See Car heating

Lighting

See Car lighting

Trailers

Boston center-entrance trailer. *Il Elec Ry J 45:1154-5 Je 19 '15*
 Boston elevated center-entrance trailer. *diag plan Elec Ry J 45:99 Ja 9 '15*
 Two-car trains on 25 per cent grade. *diags Elec Ry J 45:977-8 My 22 '15*

Street cleaning

Clean-up week in the city of New York. *Il Good Roads n s 9:232-3 Je 6 '15*
 Dust prevention and street cleaning. W. H. Connell. *Good Roads n s 9:103-6 Mr 6 '15*
 Dust suppression and street cleaning practice in Philadelphia. W. H. Connell. *Good Roads n s 10:249-52 N 6 '15*; Same abr. *Eng & Contr 44:238-42 S 29 '15*
 Manchester street cleaner. *Il Munic J 39:375-6 S 2 '15*
 Methods of street cleaning. E. D. Very. *Good Roads n s 9:221-3 Je 5 '15*
 Milwaukee bureau of street sanitation. *Munic J 37:888-90 D 17 '14*
 Notes on the development of street cleaning methods. E. D. Very. *Eng & Contr 42:394-6 O 21 '14*; Abstract. *Eng N 72:831 O 22 '14*
 Philadelphia street cleaning by contract. *Eng N 74:6-7 Jl 1 '15*
 Street cleaning data from thirty-one cities. *Munic J 38:37-8 Ja 14 '15*
 Street cleaning in Calgary. *Il Munic Eng 49:72-3 Ag '15*
 Street cleaning in Calgary. W. E. Hardenburg. *Il Munic J 38:651-2 My 13 '15*
 Street cleaning in Chicago. *Munic J 38:35 Ja 14 '15*
 Street cleaning in Grand Rapids, Mich. *Il Munic J 39:218 Ag 12 '15*
 Street cleaning in New York. *Il Munic Eng 48:46-8 Ja 15*
 Street cleaning notes. *Munic J 37:851 D 10 '14*
 Tables of street cleaning statistics furnished by officials of 150 cities. *Munic J 37:883-45 D 10 '14*
See also Cleaning of cities; Refuse and refuse disposal; Refuse collection; Snow removal; Street sprinkling

Cost

Cincinnati street cleaning. *Munic J 38:38-9 Ja 14 '15*
 Comparative cost of street sweeping and sprinkling with mules and with motors. *Munic Eng 48:305 My '15*
 Cost of cleaning various kinds of city pavements. *Eng N 73:889 My 6 '15*
 Machine vs. hand sweeping. *Il Munic Eng 48:317-18 My '15*
 New York street cleaning. *Il Munic J 39:842-4 D 2 '15*
 Records of Washington's street cleaning. *Munic J 38:654-5 My 13 '15*
 Street cleaning by motors in Houston. *Munic J 38:468-9 Ap 8 '15*
 Street cleaning in Des Moines. *Munic J 38:313 Mr 11 '15*
 Street cleaning in New Rochelle, N. Y. *Munic J 38:468 Ap 8 '15*
 Street cleaning in Norristown, Pa. S. C. Corson. *Munic J 38:189 F 11 '15*
 Street sweeping in Boise. J. M. Sharp. *Munic J 39:894-5 S 9 '15*
 Total annual cost of street cleaning. *Munic J 37:885-6 D 17 '14*

Street cleaning apparatus

Exhibit of modern street-cleaning apparatus. *Il Eng N 72:1139-42 D 3 '14*
 Exhibit of modern street-cleaning apparatus: refuse collection. *Il Eng N 72:1304-5 D 31 '14*
 Merritt pick-up street sweeper. *Il Eng N 74:207 Jl 29 '15*
 Motor-driven squeegee used for first time on streets of Milwaukee, Wis. *Il Munic Eng 49:123 S '15*

Street cleaning apparatus—Continued

- 2d annual exhibition of street cleaning machinery and appliances in New York city. *Il Good Roads* n s 10:228-9 O 16 '15
 Sprinkler-sweeper. *Il Munic J* 39:289 Ag 19 '15
 Street cleaning appliances: exhibits at the New York street cleaning department exhibition. *Il Munic J* 37:858-66 D 10 '14
Street cleaning apparatus, Electric
 Electrically driven street sweeper. *Il Elec R & W Elec'n* 66:495 Mr 13 '15
Street cleaning apparatus, Motor
 Street cleaning at Springfield, Ohio, with motor driven apparatus. G. L. Rinkliff. Eng & Contr 43:324-5 Ap 7 '15
 Street cleaning by motor apparatus. G. L. Rinkliff. *Il Munic J* 38:38-4 Ja 14 '15
 Street cleaning by motors in Houston. *Munic J* 38:468-9 Ap 8 '15
Street excavations. See **Street openings**

Street lighting

- Diminished illumination and accidents in the streets. *Ilum Engr* 8:300-1 J 15 '15; Same cond. *Am Gas Light J* 103:88 Ag 9 '15
 Effective illumination of streets. P. S. Millar. *diags* 11 pls *Am Inst E E Pro* 34:1379-98 J 15 '15; Abstract. *Elec W* 66:62-4 J 10 '15; Discussion. *Am Inst E E Pro* 34:3063-62 D '15
 Electric lighting data: station equipment—amount of current used for street lighting and other purposes—fuel statistics—number and kind of lamps used for street lighting—ornamental lighting—rates. *Munic J* 38:884-94 Je 24 '15
 Engineers' report on Milwaukee street lighting. *Elec R & W Elec'n* 66:1208 Jc 26 '15
 Experience with mazda gas-filled street lamps. C. H. Shaw. *Elec R & W Elec'n* 66:416 Mr 6 '15
 Flame-arc lighting of Indianapolis' streets. *Il Elec W* 66:452-3 Ag 28 '15
 Gas-filled units for New York street lighting. *Il Elec W* 65:1639 Je 19 '15
 Glare as a factor in street lighting. A. J. Sweet. *Elec R & W Elec'n* 66:439-43 Mr 6 '15
 High intensity street lighting of European cities compared with New York. C. F. Lacombe. *Il Ilum Eng Soc* 9:614-32 no 7 '14
 Improved street lighting at Hot Springs, Ark. *Il diag Elec W* 65:1069-70 An 24 '15
 Installation of luminous arc lamps in Worcester. *Il Elec R & W Elec'n* 66:25-8 Ja 2 '15
 Lighting city streets. charts *Munic J* 39:467-9 S 23 '15
 Lighting residence streets in Helena. C. W. Helmick. *Il Munic J* 37:917-18 D 24 '14
 Modern street illumination. W. Harrison. *Il Munic J* 38:377-80 Je 24 '15
 Modern street lighting units. L. Bell. *Elec R & W Elec'n* 66:1038-9 Je 5 '15
 Modern street lighting with mazda lamps. H. A. Tinson. *Il Gen Elec R* 18:659-65 J 15 '15
 New step in street illumination. I. Ladoff. plan *Elec R & W Elec'n* 66:891-5 Ap 10 '15
 Nitrogen-filled lamps in Chicago. *Il Elec W* 66:1173-4 My 8 '15
 Operation of mazda C street lamps. C. H. Shaw. *Elec R & W Elec'n* 67:297 Ag 14 '15
 Parallel vs. staggered arrangement of lamps. H. E. Butler. *Il Elec W* 66:1027-8 N 6 '15
 Payment for special street lighting. *Elec R & W Elec'n* 65:1129-30 D 12 '14
 Principles of scientific street lighting; abstracts. A. J. Sweet. *Elec R & W Elec'n* 66:899-1000 My 29 '15; *Elec W* 65:1485 Je 5 '15
 Progress in street lighting; committee report. *Ilum Eng Soc* 10:537-48 no 7 '15; Excerpt. *Am Gas Light J* 103:276 N 1 '15
 Safety precautions in view of the diminished public lighting. *Ilum Engr* 8:301-3 J 15 '15
 Street illuminating arches. Portland, Ore. L. R. W. Allison. *Il Eng N* 73:638 Ap 1 '15
 Street illumination tests; committee report. *Elec W* 65:1521-2 Je 12 '15
 Street lamp inspection and maintenance in Shaboygan. C. H. Shaw. *Il Elec R & W Elec'n* 66:621-2 Ap 3 '15
 Street lighting in Chicago. P. E. Haynes. *Il Ilum Eng Soc* 10:281-8 no 3 '15; Same cond. *Am Gas Light J* 102:316-17 My 17 '15
 Street lighting in Seneca Falls, N. Y. *Il Munic J* 39:486 S 16 '15

- Street lighting of London. W. B. Conant. *Il Munic Eng* 48:333-6 Je '15
 Street lighting practice with incandescent lamps. G. H. Stickney. *Il Munic Eng* 48:80-8 F '15
 Street-lighting requirements. W. E. Wicken-den. *Elec R & W Elec'n* 65:1146 D 12 '14
 Street-lighting tables for 1915. *Elec W* 64:1185 D 12 '14
 Street lighting with half-watt lamps; abstract. L. Bloch. *Elec W* 64:1259 D 26 '14
 Street lighting with modern arc lamps. W. P. Hurley. *Ilum Eng Soc* 10:405-6 no 5 '15
 Three white-way installations in Ohio. *Il Elec W* 65:1709 Je 26 '15
 Time switch for series-tungsten street-lighting system. J. P. Byron. *diags Elec W* 65:223 Ja 23 '15
 See also **Electric lamps, Tungsten; Lighting**

Contracts

- Boston street-lighting contract signed. *Elec W* 64:1185 D 18 '14
 Contracts for street lighting. *Elec W* 64:1089-90 D 5 '14
 Proposed street lighting contract. C. A. Tripp. *Munic Eng* 48:168-9 Mr '15
 Street lighting in Rochester; terms of contract and specifications. *Munic J* 38:392-3 Mr 25 '15
 Street lighting in Youngstown. W. A. Mason. *Munic J* 38:593-4 Ap 29 '15
Cost
 Comparative cost of flame-arc and nitrogen-filled incandescent lighting for streets. *Elec W* 65:682 Mr 13 '15
 Comparative cost of magnetite-arc and nitrogen-filled tungsten street-lighting units. J. H. Loban. *Elec W* 66:109 J 10 '15
 Cost of boulevard lighting and street sprinkling and flushing in Grand Rapids, Michigan. Eng & Contr 42:485-6 N 18 '14
 Gas and electric street lights; comparison of cost and efficiency. *Il Munic Eng* 49:36-8 S '15
 Saving of \$400,000 effected in New York city by substituting incandescent lamps for arc lamps. *Il Elec W* 66:512-13 S 4 '15
 Street lighting in Chicago; report. *Elec R & W Elec'n* 67:491 S 11 '15; Excerpt. *Elec W* 66:315 Ag 7 '15
 Street lighting in Youngstown. W. A. Mason. *Munic J* 38:593-4 Ap 29 '15
 Street lighting; tabulation. *Munic J* 38:890-2, 894 Je 24 '15
 Tucson's ornamental lighting. *Il Elec W* 66:761 O 2 '15

Law

- Municipal powers re. lighting plants. J. Simpson. *Munic J* 38:880-3 Je 24 '15

Rates

- Factors in rate-making. A. S. Ives. *Elec W* 65:988-9 Ap 17 '15
Street lighting fixtures
 Cleveland lantern for ornamental lighting. W. Harrison. *Il Elec W* 66:521-4 S 4 '15
 Concrete lighting standards for bridges at Houston, Texas. W. W. Washburn. *Il diags Concrete Cem* 6:128-4 Mr '15
 Gas-filled ornamental lighting at Rockville Center, N. Y. A. L. Powell. *Il Elec W* 66:483 Ag 28 '15
 Gas street lighting development. F. R. Hutchinson. *Il Am Gas Light J* 102:366-8 Je 7 '15
 Lighting city streets. charts *Munic J* 39:467-9 S 23 '15
 Mazda-lamp fixtures for street-lighting service. *Il Elec R & W Elec'n* 65:1191-2 D 19 '14
 New Cutter street-lighting fixtures. *Il Elec R & W Elec'n* 66:359-60 F 20 '15
 Novalux units for mazda series street lighting. *Il Elec R & W Elec'n* 67:910-11 N 13 '15
 Ornamental lighting posts that show the house numbers. A. Marple. *Il Elec W* 66:705 S 25 '15
 Ornamental street-lighting systems compared. H. E. Mahan and H. E. Butler. *Il diags Elec W* 66:180-2 J 24 '15
 Salt Lake City's new arc-lighting system. *Il Elec W* 66:1070 N 13 '15

Street lighting fixtures—Continued

Series street-lighting fixtures for high-efficiency tungsten lamps. *Il Elec W 66:1161-2 N 20 '15*

Street lighting fixtures. *Il Munic Eng 48:8-9 Ja '15*

Street-lighting fixtures for type C mazda lamps. *Il Elec R & W Elec'n 67:299-300 Ag 14 '15*

Temporary aisle-of-safety lamps for Chicago boulevards. *diag Elec W 65:351-2 F 6 '15*

Tucson's ornamental street-lighting system. *Il Elec R & W Elec'n 66:962-3 My 22 '15*

Street mapping. See City planning

Street oiling

Method and cost of street oiling in Carlisle, Pennsylvania. *J: C. Hiteshew. Eng & Contr 43:513 Je 9 '15*

Surface oiling of city streets. *T. R. Agg. Munic J 38:563-4 My 13 '15*

Street openings

Appellate court of the state of New York and the question of allowances for paving over mains in valuation work. *J: W. Alvord. Am Water Works Assn J 2:455-81 S '15; Same cond. Eng & Contr 43:532-5 Je 16 '15; Discussion. Am Water Works Assn J 2:482-92 S '15*

Argument for the ownership of water services by the utility. *M. L. Cooke. Eng & Contr 44:386-7 N 17 '15*

Control of openings in street pavements and the cost of restoration in Cincinnati. *Eng & Contr 42:347 O 7 '14*

Ordinances regulating street excavating—replacement by city. *Munic Eng 48:116-18 F '15*

Regulating street excavations; digest of ordinances of eight cities. *A. L. Bostwick. Munic J 38:281-2 Mr 4 '15*

Repairing brick pavements after street excavations. *P. J. Masterson. Eng N 73:997 My 20 '15; Same. Good Roads n s 9:190 My 1 '15; Munic Eng 48:308-9 My 15 '15; Munic J 38:628-9 My 6 '15*

Street openings in Cleveland. *Munic J 38:282-3 Mr 4 '15*

Street railroad law

Illinois commission prescribes minimum clearances. *Ry R 56:633-6 My 8 '15*

See also Street railroads—Franchises; Street railroads—Regulation

Street railroads

Autos and the electric car. *J: A. Beeler. Elec Ry J 46:690-2 S 18 '15*

British India. *Il U S Sp Cons Rep 72:81-4 '15*

Buffalo's railway facilities; sketch of past and present conditions. *E. J. Dickson. Elec Ry J 45:185-6 Ja 16 '15*

Convention of Pennsylvania association. *Elec Ry J 44:1298-9 D 12 '14*

Iowa street & interurban railway association 12th annual convention. *Elec Ry J 45:839-41 My 1 '15*

Pennsylvania street railway association spring meeting; workmen's compensation, organized safety, small car operation and other topics discussed. *Elec Ry J 45:935-6, 979-82 My 15-22 '15*

See also Cable railroads; Car houses; Electric railroads; Elevated railroads; Motor cars (street railroad); Rapid transit; Snow removal; Street cars; Subways; also names of cities, subhead Rapid transit

Accidents

Argument on authority of Interstate commerce commission to require reports of accidents and other statistics from urban railways. *J: T. Beasley. Elec Ry J 44:1389-90 D 26 '14*

Investigation and handling automobile accidents. *J: S. Mills. Elec Ry J 45:1203-4 Je 26 '15*

Legal aspects of accidents. *G: P. Hoover. Elec Ry J 45:461 Mr 6 '15*

Ruling on accident reports. *Elec Ry J 45:883-4 My 8 '15*

See also Subways—Accidents

Advertising

Chicago surface lines advertise. *Elec Ry J 48:823-5 O 16 '15*

Cars

See Street cars

Claims

Medical and claim departments. *J. H. Handlon. Elec Ry J 46:83 JI 10 '15*

Pacific coast claim agents' 7th annual convention; abstracts of papers. *Elec Ry J 46:8-12 JI 8 '15*

Papers before the Claims association. *W: Tichenor. Elec Ry J 46:811-21 O 16 '15*

Pittsburgh railways claim department. *Elec Ry J 46:139-45, 486-41 JI 24, S 11 '15*

See also Railroads—Claims

Complaint bureaus

Complaint bureaus. *Elec Ry J 45:23-7 Ja 2 '15*
Ironing out the wrinkles. *A. W. Warnock. Elec Ry J 46:264-7 Ag 14 '15*

Construction

Municipal street railways. *A. J. Cleary. Il maps Eng N 73:320-2 F 18 '15*

See also Electric railroads—Construction; Street railroads—Crossings; Street railroads—Track

Cost of operation

Operating cost and shifts in service. *F. W. Doolittle. Elec Ry J 46:306-3 Ag 21 '15*

Crossings

Practical views of special work—the crossing. *R. P. Williams. diag Elec Ry J 46:878-80 O 2 '15*

Recent manganese steel crossings. *C. L. Hawkins; E. P. Roundey. Elec Ry J 45:892 My 8 '15*

Solid manganese steel crossings in Chicago. *Il diag Elec Ry J 45:711-12 Ap 10 '15*

Employees

Baltimore's pension system. *Elec Ry J 45:172-3 Ja 23 '15*

Bay State street railway arbitration. *Elec Ry J 45:708-10, 854, 1019-21, 1205-6 Ap 10, My 1, 29, Je 26 '15*

Chicago arbitration. *Elec Ry J 45:1128; 46:34, 75-6 Je 12, JI 8-10 '15*

Chicago arbitration award. *Elec Ry J 46:118 JI 17 '15*

Chicago's two-day strike. *Elec Ry J 45:1165-8 Je 19 '15*

Courtesy of platform men. *Elec Ry J 45:20-3 Ja 2 '15*

Detroit strike. *Elec Ry J 45:998 My 22 '15*

Employees receive increase in Chicago. *Elec Ry J 46:148-9 JI 24 '15*

Employment on city lines. *H. A. Bullock. Elec Ry J 45:484 Mr 6 '15*

Following up platform recruits at Syracuse. *Elec Ry J 45:704 Ap 10 '15*

Fort Wayne strike. *Elec Ry J 46:684, 1004 O 2, N 13 '15*

Holyoke arbitration. *Elec Ry J 46:833 O 23 '15*

Modern railway school. *Il plans Elec Ry J 46:344-58 Ag 28 '15*

Recreation and welfare work for Los Angeles railway employees. *L. O. Lieber. Il Elec Ry J 46:506-7 S 18 '15*

Report of the Transportation and traffic association committee on training transportation employees. *Elec Ry J 46:766 O 9 '15*

Rhode Island wage arbitration. *Elec Ry J 46:903-5 O 30 '15*

Seven per cent wage reduction granted; British Columbia electric railway, Ltd. *Elec Ry J 46:392-4 S 4 '15*

Strike at Wilkes-Barre again. *Elec Ry J 46:882 O 23 '15*

Syracuse arbitration. *Elec Ry J 45:999 My 22 '15*

Welfare and educational work among employees. *R: Meriwether. Elec Ry J 45:1029 My 29 '15*

Welfare work. *J. W. Lillenthal. Gen Elec R 18:1093-7 D '15; Same cond. Elec Ry J 46:710-12 O 9 '15*

Women fast taking the places in tramway service of men needed at the front. *Elec Ry J 46:83 JI 8 '15*

Equipment and supplies

Electric garment dryer conserves health and schedules. *Il Elec Ry J 45:300 F 6 '15*

Street railroads—Equipment—Continued

Track tools—supplies and appliances. R. C. Cram. Elec Ry J 45:1169-70 Je 19 '15

Fare collecting

Collection and registration of city and inter-urban fares. J. E. Hewes. Elec Ry J 45:466-7 Mr 8 '15
Front-end fare collection improves service at San Francisco. H. T. Jones. Il Elec Ry J 46:512-14 S 18 '15

Fare registers

Automatic fare collector and change-making machine. Il Elec Ry J 46:1047-8 N 20 '15
Automatic registration of fares. G. F. Rooke. Elec Ry J 45:844 My 1 '15
Combination fare box and recorder. Il Elec Ry J 44:1264 D 5 '14
Combination fare registers for coins, metal tickets and transfers. Il Elec Ry J 44:1262 D 5 '14
Metal ticket and fare box effect saving. Elec Ry J 46:1047 N 20 '15
New computing fare recorder. Il Elec Ry J 45:145 Ja 16 '15
New form of cash and ticket fare box. Il Elec Ry J 45:1081-3 Je 5 '15
New forms of fare indicators and recorders. Il Elec Ry J 46:1173-4 Je 19 '15
Prepayment cars and the accountant. R. J. Clark. Elec Ry J 46:721-2 O 9 '15
Universal register for electric railway service. Il Elec Ry J 46:112-14 Jl 17 '15

Fares

Another Massachusetts fare increase; the Blue Hill street railway. map Elec Ry J 46:226-8 Ag 7 '15
Decision in Rochester fare case. Elec Ry J 45:439-40 F 27 '15
Fare increase asked in Milwaukee. Elec Ry J 46:889, 1099 O 23, N 27 '15
Hearing on fare increase. Elec Ry J 45:863 My 1 '15
Milwaukee fare case decided. Elec Ry J 46:53-3 Jl 10 '15
Reduction in city fare by the British Columbia electric railway, Vancouver, B. C. Elec Ry J 45:959-60 My 15 '15
Report of the A. E. R. A. committee on fares and transfers. Elec Ry J 46:764-5 O 9 '15
Trenton, N. J., fare hearing. Elec Ry J 46:931 O 30 '15
Zone system of fares. Elec Ry J 45:826 My 1 '15
Zone system of fares in practice; with discussion. R. B. Stearns. Elec Ry J 46:836-8 My 1 '15

See also Electric railroads—Fares; Street railroads—Fare collecting; Street railroads—Transfers

Finance

Another Massachusetts fare increase; the Blue Hill street railway. map Elec Ry J 46:226-8 Ag 7 '15
Apportionment of cost of highway bridges between street railways and cities; with discussion. C. M. Spofford. Il diag W Soc E J 20:405-43 My '15
Brooklyn rapid transit. Ry Age 59:223-4 Ag 6 '15
Interborough rapid transit company, New York; comparative statement of income, profit and loss for the years ended June 30, 1914 and 1915. Elec Ry J 46:606-7 S 18 '15
Investment required per passenger. D. J. McGrath. Elec Ry J 45:881-3 My 8 '15
Kansas City supplemental plan. Elec Ry J 46:1054-5 N 20 '15
Washington railway & electric company's profit-sharing checks. C. P. King. Elec Ry J 45:157-8 Ja 16 '15

See also Street railroads—Taxation; Street railroads—Valuation

Franchises

Des Moines ordinance. Elec Ry J 46:461 S 11 '15
Furthering the progress of the Toledo franchise. Elec Ry J 46:684-5 O 2 '15
Toledo tentative draft completed. Elec Ry J 46:245-6 Ag 7 '15

Inspection

Car service inspection in Seattle. J. W. McCloy. Elec Ry J 46:272-3 Ag 14 '15
Inspecting equipment in Greater New York. W. C. Whiston. Elec Ry J 45:133 Ja 16 '15

Inspection of watches

See Street railroads—Management

Law

See Street railroad law

Lost articles

Handling lost articles. Elec Ry J 45:23 Ja 2 '15

Management

Departmental work planning system at Portland, Ore. F. P. Maize. Il Elec Ry J 46:565-7 S 18 '15
Detroit's urban transportation needs—present and future—set forth. Eng Rec 71:427-8 Ap 3 '15
Dispatching city cars. E. Dana. Il Elec Ry J 45:802-3 Ap 24 '15
Experience with the one-man electric car in a small city. R. M. Howard. Il Elec Ry J 45:233-4 Ja 30 '15
Lancaster's experience with time-inspection system. R. B. Hull. Elec Ry J 46:1034-5 N 20 '15
Pittsburgh railways claim department. Elec Ry J 46:139-45, 438-41 Jl 24, S 11 '15
Public-be-pleased policy in practice. Elec Ry J 45:20-33 Ja 2 '15
Report on Detroit traffic. Elec Ry J 45:664-5 Ap 3 '15
Telephone dispatching at San Antonio. Il Elec Ry J 46:92-3 Jl 17 '15
Telephone dispatching in city service. E. E. Strong. Il Elec Ry J 45:885-7 My 8 '15
Telephone dispatching on street-railway lines. Il Elec R & W Elec'n 65:1150-1 D 12 '14
See also Street railroads—Complaint bureaus; Street railroads—Employees; Street railroads—Public relations; Street railroads—Records; Street railroads—Routes; Street railroads—Schedules; Street railroads—Stops

Municipal ownership

See Street railroads, Municipal

Near-side stop

See Street railroads—Stops

Public relations

Code of principles. T. S. Williams. Elec Ry J 45:220-2; Discussion. G. E. Tripp; M. C. Brush. 45:214-16 Ja 30 '15
Public-be-pleased policy in practice. Elec Ry J 45:20-33 Ja 2 '15
Publicity in Atlanta. Elec Ry J 45:111 Ja 9 '15
Welfare work. J. W. Lillenthal. Gen Elec R 18:1092-7 D '15; Same cond. Elec Ry J 46:710-12 O 9 '15

See also Street railroads—Franchises; Street railroads—Regulation; Street railroads—Service; Street railroads, Municipal

Records

Car service inspection in Seattle. J. W. McCloy. Elec Ry J 46:272-3 Ag 14 '15
Card index and what it means. J. J. Reynolds. Elec Ry J 46:815-18 O 16 '15
Collection of traffic data. F. W. Doolittle. Elec Ry J 46:94-101 Jl 17 '15
Departmental work planning system at Portland, Ore. F. P. Maize. Il Elec Ry J 46:565-7 S 18 '15
Novel service record chart. Elec Ry J 45:366 F 20 '15
Standardization of claims statistics. E. E. Slick. Elec Ry J 46:813-15 O 16 '15

Referendums

Public referendums. Elec Ry J 45:27-8 Ja 2 '15

Regulation

Argument on authority of Interstate commerce commission to require reports of accidents and other statistics from urban railways. J. T. Beasley. Elec Ry J 44:1389-90 D 26 '14
Regulation of public utilities. L. A. Busby. Elec Ry J 46:1081-4 N 27 '15

Street railroads—Regulation—Continued

St. Louis service order; Missouri commission fixes service standards, defining rush-hour periods, transition periods and non-rush-hour periods. Elec Ry J 45:981 My 15 '15

See also Street railroad law; Street railroads—Franchises; Street railroads—Public relations; Street railroads, Municipal

Routes

Traffic congestion problem in Brooklyn, N. Y. W. H. Messenger. Il Munic Eng 48:19-25 Ja '15

Safety devices and measures

Brooklyn rapid transit safety work for employees. Elec Ry J 44:1291-2 D 13 '14
Brooklyn safety reports for employees. Elec Ry J 45:1196-7 Je 26 '15

Moving picture exchange for A. E. R. A.? F. J. Warnock. Elec Ry J 46:820-1 O 18 '15
Organized safety. L. R. Palmer. Elec Ry J 45:988 My 15 '15

Public school safety work in Brooklyn. Elec Ry J 46:691 O 2 '15

Relation of safety to conservation. B. F. Boynton. Elec Ry J 46:819-20 O 16 '15

Safety-first committee meets. Elec Ry J 46:103-5 Jl 17 '15
Safety first movement. Il Elec Ry J 45:34-46 Ja 2 '15

Schedules

Express cars in city service. Elec Ry J 44:1342 D 19 '14

From traffic study to time-table. F. W. Doolittle. Elec Ry J 46:587-9 S 18 '15

Operating cost and shifts in service. F. W. Doolittle. Elec Ry J 46:306-8 Ag 21 '15

Report of committee of A. E. R. A. on schedules and time-tables. Elec Ry J 46:757-9 O 9 '15

Schedule speed—a neglected factor. Elec Ry J 46:742-3 Ap 17 '15

Schedule speed in city service. Elec Ry J 46:29-30 Ja 2 '15

Time-table practice of the San Francisco-Oakland terminal railways. U. S. Suter. Elec Ry J 46:521-2 S 18 '15

Traffic analysis and schedule planning at Portland, Ore. F. Cooper. Elec Ry J 46:563-4 S 18 '15

See also Street railroads—Service; Street railroads—Stops

Service

Commission fixes service standards in Chicago. Elec Ry J 46:775 O 9 '15

Manila company submits service brief. Elec Ry J 46:872-3 O 2 '15

Shelter stations

Shelter-station for car passengers. K. C. Cardwell. Il Munic J 39:474 S 23 '15

Waiting stations and shelters. Elec Ry J 45:33 Ja 2 '15

Shops

See Electric railroads—Shops

Stations

See Street railroads—Shelter stations; Street railroads—Terminals

Statistics

Bay State street railway arbitration. Elec Ry J 46:708-10 Ap 10 '15

Census report on electric railways. Elec Ry J 45:180-2 Ja 16 '15

Charts exhibited in Rhode Island company wage arbitration hearings. Elec Ry J 46:664 O 2 '15

Stops

Express and skip-stop service in Denver. C. B. Wells. Elec Ry J 46:448 S 11 '15

Near-side stop. Elec Ry J 46:81-2 Ja 2 '15

Skip-stops in St. Louis. Elec Ry J 46:185-6 Jl 31 '15

Skip stops saves time. Elec Ry J 46:651 S 25 '15

Taxation

St. Louis mill tax decision: upholds the right to tax fares of the United railroads. Elec Ry J 46:70 Ja 2 '15

Terminals

Newark railway terminal and utilities building. Il plans Eng N 74:836-40 O 23 '15

Newark terminal to relieve traffic congestion. diag maps Eng N 74:680-2 O 7 '15

Track

All-babbitted center. R. P. Williams. diag Elec Ry J 44:1362-3 D 19 '14

Baltimore experience in paving street-railway tracks. H. D. Willmar, Jr. Il diag Eng N 73:884-5 My 6 '15

Card records of Los Angeles track work. G. E. Campbell. Elec Ry J 46:407-8 S 4 '15

Columbus uses new joint and track foundation. B. O. Ackerman. Il diag Elec Ry J 46:956-7 N 6 '15

Concrete pavement in the track allowance. H. C. Campbell. Il Elec Ry J 46:998-1000 N 13 '15

Cost of concrete header along rails. H. R. Ferris. Eng & Contr 43:545 Je 16 '15

Deferred maintenance. C. H. Fuller. Elec Ry J 45:791-3 Ap 24 '15

Detail cost of track work with steel twin ties. A. J. Wolfe. diag Elec Ry J 46:916-17 O 30 '15

Discussion of depreciation. P. J. Kealy. Eng & Contr 44:118-23 Ag 18 '15

Flange-bearing special work. A. E. Harvey. Elec Ry J 46:84 Jl 10 '15

Flange-bearing track intersections for street railways. diag Eng N 73:158-9 Ja 23 '15

Girder and high T-rail renewals. A. Swartz; C. L. Hawkins. Elec Ry J 46:400-1 S 4 '15

Girder and high T-rail renewals. B. F. Legare. Elec Ry J 46:320 Ag 21 '15

Girder and high T-rail renewals. D. P. Falconer. Elec Ry J 46:828-31 O 16 '15

Girder and high T-rail renewals. E. M. Haas. diag Elec Ry J 46:179-84 Jl 31 '15

Girder and high T-rail renewals. G. L. Wilson; E. P. Roundey. Elec Ry J 46:592-3 S 18 '15

Girder and high T-rail renewals. W. F. Graves; R. C. Cram. Elec Ry J 46:872-3 O 23 '15

Grinding rail with carborundum track brake shoes. Il Elec Ry J 46:241 Ag 7 '15

Joint repairs on American city railways. S. Gausmann. Elec Ry J 45:803-4 Ap 24 '15

Laying new rails on old ties embedded in concrete. St. Louis, Mo. Il Eng N 74:840-1 O 23 '15

Laying street-railway track without ties. E. R. Horton, Jr. diag Eng N 74:504-9 S 23 '15

Life of way structure as affected by engineering and municipal conditions. P. N. Wilson. diag Elec Ry J 45:1212-13 Je 26 '15

Manganese steel special work. Elec Ry J 45:576-8 Mr 20 '15

Methods and costs of concreting for modern pavement. S. Gausmann. Elec Ry J 45:718-19 Ap 10 '15; Excerpt (Suggestions for concreting street railway track). Eng Rec 71:534 Ap 24 '15

New track and conduit construction at Worcester, Mass. Il Elec Ry J 46:325-6 Ag 21 '15

Non-splashing electric track switch. Il Elec Ry J 45:1083-4 Je 5 '15

Pine ties reused by street railway after twenty-one years' service. R. C. Cram. Elec Ry J 45:295-6 F 6 '15

Practical views of special work—the tongue switch. R. P. Williams. diag Elec Ry J 46:639-41 S 25 '15

Practice in paving street-railway tracks. Il diag Eng N 73:888 My 6 '15

Rail wear in Chicago. Elec Ry J 45:1195-6 Je 26 '15

Recommended street-railway track construction. Il Eng N 74:846 O 23 '15

Reconstruction of street-car tracks at Kansas City, Mo. E. B. Murray. Il Eng N 74:411-13 Ag 26 '15

Records of rail wear from vehicle traffic. Eng & Contr 44:42 Jl 14 '15

Relaying street-railway track at Cincinnati. Il Eng N 74:362 Ag 19 '15

Replaceable flange risers of tool steel in Seattle special work. J. Parkin. Il diag plan Elec Ry J 44:1394-5 D 26 '14

Report of the committee of A. E. R. A. on way matters. diag Elec Ry J 46:752-4 O 9 '15

Street railroads—Track—Continued

- Ripping up street railway tracks. Eng N 78: 1134-5 Je 10 '15
- Standard paved track construction of the Southern public utilities co. Il Elec Ry J 46: 324-5 Ag 21 '15
- Steel vs. wood ties in city track construction. J. A. Nester. Il Elec Ry J 46:1089 N 27 '15
- Street-railway track in American cities. Il Eng N 74:750-1 O 14 '15
- Track construction and flangeways in paved streets. Eng Rec 71:405 Mr 27 '15
- Track construction in paved streets. B. R. Brown. Elec Ry J 45:1028-9 My 29 '15
- Track on concrete stringers. H. B. Nichols. Elec Ry J 46:402-3 S 4 '15
- Track reconstruction in San Antonio. G. W. Smith. Elec Ry J 45:1030 My 29 '15
- Track renewal discloses perfect condition of 14-year-old granite pavement in Worcester, Mass. Il Eng Rec 72:229-30 Ag 31 '15
- Track-trench excavating machine. Il Elec Ry J 46:74 J1 10 '15
- Track work by contractor or way department? S. Gausmann. Elec Ry J 45:895-6 My 8 '15
- Way records on a cost-per-section basis. D. P. Falconer. Elec Ry J 46:1038-6 My 29 '15
- Yard entrance track layout possibilities. S. Striezhoff. diags Elec Ry J 46:876-7 O 23 '15
- See also* Electric railroads—Track; Street railroads—Crossings

Traffic

- Collection of traffic data. F. W. Doolittle. Elec Ry J 46:94-101 J1 17 '15
- From traffic study to time-table. F. W. Doolittle. Elec Ry J 46:587-9 S 18 '15
- Operating cost and shifts in service. F. W. Doolittle. Elec Ry J 46:306-8 Ag 21 '15
- Organizing the traffic survey. F. W. Doolittle. Elec Ry J 45:1160-2 Je 19 '15
- Periodical traffic counts. Elec Ry J 45:27 Ja 2 '15
- Plotting peak traffic as an aid to schedule adjustment. Elec Ry J 45:138 Ja 10 '15
- Recent practice in traffic counts. D. J. McGrath. Elec Ry J 44:1385-7 D 26 '14
- Relieving traffic congestion. Il Elec Ry J 45: 30-2 Ja 2 '15
- Traffic analysis and schedule planning at Portland, Ore. F. Cooper. Elec Ry J 46:562-4 S 18 '15
- Traffic characteristics. F. W. Doolittle. Il Elec Ry J 45:928-9 My 15 '15
- Traffic characteristics and investment per revenue passenger. J. A. Emery. Elec Ry J 45: 1119-20 Je 12 '15
- Traffic investigation in Denver. R. W. Toll. Elec Ry J 46:309-11 Ag 21 '15

Trailer operation

- Rochester train operation; operation of motor and trailer combinations has relieved traffic congestion in downtown section. diags Elec Ry J 45:762-3 Ap 17 '15

Transfers

- Printing 1,000,000 transfers a day; the Third avenue railway system prints its own transfers at a net cost of 9 cents per 1000. Il Elec Ry J 45:702-4 Ap 10 '15
- Transfer issuing machine. Il Elec Ry J 46: 453-4 S 11 '15

Valuation

- Discussion of depreciation. P. J. Kealy. Eng & Contr 44:118-23 Ag 18 '15

Yards

- Yard entrance track layout possibilities. S. Striezhoff. diags Elec Ry J 46:876-7 O 23 '15

Street railroads, Municipal

- Boston versus Glasgow. Elec Ry J 46:443 S 11 '15
- Calgary's municipal street railway. W. E. Hardenburg. Il Munic J 39:395-7 S 9 '15
- Detroit purchase negotiations. Elec Ry J 45: 725 Ap 10 '15
- Municipal operation in England. A. N. Connitt. Elec Ry J 45:179-80 Ja 23 '15
- Municipal ownership in Seattle. Elec Ry J 44: 1311; 45:431 D 12 '14, F 27 '15
- Municipal street railways. A. J. Cleary. Il plan map Eng N 78:320-4 F 8 '15

- Municipalization or a just regulation, a plea for the facts; abstract. J. W. Sullivan. Elec Ry J 44:1290 D 12 '14
- San Francisco municipal railways; annual report. Elec Ry J 45:1221 Je 26 '15

Street signs

- Concrete street signs and standards—letters in colored concrete. Il diag Concrete Cem 7: 45 J1 '15
- Municipally made street signs. H. M. White. Il Munic J 39:659 O 28 '15
- Portland street corner directories. Munic J 39: 7 J1 1 '15
- Street-name signs. Il Eng N 78:757 Ap 22 '15
- Street signs placed in 1915. Munic Eng 48: 270 Ap '15

Street sprinkling

- Electric street sprinklers. Il Elec W 65:238 Ja 23 '15; Same. Eng Rec 71:117 Ja 23 '15
- See also* Street oiling

Cost

- Comparative cost of street sweeping and sprinkling with mules and with motors. Munic Eng 48:305 My '15
- Cost of boulevard lighting and street sprinkling and flushing in Grand Rapids, Michigan. Eng & Contr 42:485-6 N 18 '14
- Motor truck reduces sprinkling cost 70 per cent. Eng Rec 71:520 Ap 24 '15

Street sweepers. See Street cleaning apparatus**Street traffic**

- Chicago takes a traffic census of the loop. Eng Rec 72:364 S 18 '15
- City street traffic investigation; Bridgeport, Conn. A. F. Muller. plan Eng N 73:111-12 Ja 21 '15
- Example of traffic census, Euclid avenue, Cleveland. M. B. Greenough. Eng & Contr 43:502-3 Je 2 '15
- Jitney bus; a new problem in traffic regulation. F. Reed. Il Munic Eng 48:160-7 Mr '15
- Marking safety zones in Indianapolis. J. F. Hobart. Il plan Munic Eng 49:99-100 S '15
- Means for traffic regulation in Detroit. plan Eng & Contr 44:203-4 S 15 '15
- Operation of safety zones in Kansas City, Mo. Il Elec Ry J 46:308 Ag 21 '15
- Rotary traffic system in force in St. Louis. diag Automobile 32:249 F 4 '15
- Rules and regulations governing street traffic in Philadelphia. Il diags Eng & Contr 42: 821-4 S 30 '14
- Semaphore with automatic whistle to direct street traffic in San Francisco. Il Elec Ry J 45:671 Ap 3 '15
- Street safety in Detroit. Il plan Eng M 50: 450 D '15
- Three years' growth of street traffic in Newark, N. J. H. Bartholomew. Eng N 74:538-9 S 16 '15
- Traffic census and its bearing on the selection of pavements. W. W. Crosby. Good Roads n s 10:265-6 N 6 '15
- Traffic congestion problem in Brooklyn, N. Y. W. H. Messenger. Il Munic Eng 48:19-25 Ja '15
- Traffic control at electric railway crossings. Il Munic Eng 48:178-80 Mr '15
- Traffic count on Chicago streets. Elec Ry J 46:632-3 S 25 '15
- Traffic investigation in Denver. R. W. Toll. Elec Ry J 46:309-11 Ag 21 '15
- Traffic regulation by zones marked on pavements. Munic Eng 48:221 Mr '15
- Why local regulations of motor truck traffic are objectionable. Horseless Age 35:407-9 Mr 24 '15
- See also* Vehicles

Streets

- Boulevard system of San Francisco. J. M. Owens. map Eng N 74:498-9 S 9 '15
- Chicago plan and the new heavy-traffic streets. W. D. Moody. map Eng N 78:482-3 Mr 11 '15
- City of Oakland, California, and its street work. W. H. Jordan. Il Good Roads n s 10: 127-32 S 4 '15
- Cutting a city street through a railway station. Springfield, Mass. Il diags plan Eng N 74: 296-9 Ag 12 '15
- Heavy cut for a street at Kansas City. Il diag Eng N 72:1158-60 D 10 '14

Streets—Continued

- New street line monuments at Pittsburgh. *diag Eng & Contr* 43:574 Je 30 '15
 Organization, character of personnel, scope of work, and methods of operation and control of a large municipal highway department. W: H. Connell. *il map J Fr Inst* 179: 430-69 Ap '15
 Proposed design for stub-end streets. H. C. Campbell. *diag Eng & Contr* 44:350 N 3 '15
 Protecting newly paved streets at Baltimore. *Eng N* 73:55 Ja 14 '15
 Scheme to relieve congestion at busy street intersection. *il Eng N* 74:875 N 4 '15
 Street contours at intersections and crosswalks. H. J. Fixmer. *plan Eng N* 73:767 Ap 22 '15
 Street grade changed 19 ft. on Seattle line. *il Elec Ry J* 45:832 My 1 '15
 Street grading in cities, 1915. *Munic Eng* 48: 257 Ap '15
 \$3,000,000 needed for improving Boston's streets. *Eng Rec* 72:503-4 O 23 '15
 Widening a business street at St. Paul, Minn. *diag Eng N* 72:1299 D 31 '14
See also Alleys; City planning; Dust prevention; Pavements; Roads; Sidewalks; Snow removal; Street cleaning; Street lighting; Street openings; Street traffic; Subways (streets); also names of cities, subhead Streets

Bibliography

- Streets; their arrangement, lighting and planning. T. Kimball. *Special Libraries* 6:42-8 Mr '15

Laws and regulations

- Street work in New York. *Munic J* 39:3-4 Jl 1 '15

Maintenance and repair

- Street repair in Cleveland, Ohio; with cost tables. P. J. Masterson and others. *il Munic Eng* 49:174-8 N '15

Obstructions

- Piling building material in city streets. J. C. Trautwine, jr. *il Eng & Contr* 43:377 Ap 28 '15

Width

- Narrow vs. wide paved roadways in residential districts. *il Eng & Contr* 44:148 Ag 25 '15
 Pavement widths and crowns. H. J. Fixmer. *diag Good Roads n s* 9:230-1 Je 5 '15; *Correction*. 10:16 Jl 3 '15
 Wide streets and narrow walks and roadways in residential districts. N. P. Lewis. *Eng & Contr* 43:368 Ap 21 '15
 Width and arrangement of residential streets in a small English town. A. J. Price. *Eng & Contr* 43:168 Ag 12 '14
 Width of bridges and highways. C. M. Spoford. *Munic Eng* 49:114 S '15
 Width of residence streets. *Munic J* 38:290 Mr 4 '15

Stremmatograph

- Instrument to determine the unit fiber strains in rails. P. H. Dudley. *Gen Elec R* 17:1043-6 N '14; *Same*. *Sci Am S* 78:370-1 D 12 '14

Strength of materials

- Failure of structural brasses. P. D. Merica and R. W. Woodward. *Metal Ind n s* 13:459-61 N '15 (to be cont)
 Notch shock tests and the law of similarity; abstract. R. Striebeck. *diag Am Soc M E J* 37:183-4 Mr '15
 Strength of metals vs. composition. H. A. Lewis. *Metal Ind n s* 13:201-2 My '15
 Stucco board vs. standard built walls. *il Bldg Age* 37:87-8 Ap '15
 Tests on the diagonal strength of boiler plate. J. W. F. Macdonald. *Power* 41:779-80 Je 8 '15

- See also* Architecture; Building; Building materials; Cast iron—Testing; Elasticity; Girders; Strains and stresses; Trusses; Wood—Testing

Strikes

- Arizona copper miners' strike. *il Eng & Min J* 100:805-7 O 9 '15
 Chicago's two-day strike. *Elec Ry J* 45:1165-8 Je 19 '15

- Detroit strike. *Elec Ry J* 45:998 My 22 '15
 Fort Wayne strike. *Elec Ry J* 46:684, 1004 O 2, N 13 '15
 Strike at Wilkes-Barre again. *Elec Ry J* 46: 882 O 23 '15
 Strike in Wilkes-Barre, Pa. *Elec Ry J* 45:726 Ap 10 '15
 Strike of freight handlers in Boston. *Ry Age* 59:865 N 5 '15
 Strike situation in Arizona. *il Eng & Min J* 100:731-3 O 30 '15
 Strikes and lockouts—causes and effects. *Am Ind* 15:39 Mr '15
 Syracuse strike settled. *Elec Ry J* 45:767 Ap 17 '15

- See also* Arbitration, Industrial; Labor and laboring classes; Open and closed shop; Picketing

Stripping. See Hydraulic excavation**Strontium**

- Strontium in the beet sugar industry. H. C. Meyer. *J Ind & Eng Chem* 6:1036 D '14
 Two methods of separation of the metals of the alkaline-earth group. A. G. Paterson. *Am Chem Soc J* 37:2346-52 O '15

Stucco

- Probable life of Portland cement stucco on metal fabric. *Concrete Cem* 7:151-5 O '15
 Stucco in suburban architecture—notes on Ogontz Hill, Philadelphia. O. C. Hering. *il Concrete Cem* 6:9-14 Ja '15
 Thin stucco finish on garden walls and buildings near Middleburg, Va. *il Concrete Cem* 6:24-5 Ja '15

Studebaker corporation, South Bend, Indiana

- Unprecedented year for Studebaker corporation. *Horseless Age* 35:289-90 Mr 3 '15

Student life. See College students**Study**

- Economy in study; psychological and physiological points on how to study to the best advantage. G. V. Dearborn. *Sci Am S* 80: 34-5 Jl 17 '15

Stumps. See Clearing of land**Subaqueous excavation. See Excavation, Subaqueous****Subdivision of ships. See Naval architecture—Subdivision****Submarine boats**

- Austrian submarines. *il Sci Am* 113:250 S 18 '15
 Baby submarine. *Sci Am* 113:316 O 9 '15
 Boat design that eliminates bow waves and wake. C. Hering. *il Sci Am* 113:325 O 9 '15; *Discussion* (Waveless boat). 113:447 N 20 '15
 Edison submarine boat storage battery. H. T. Wade. *il Sci Am* 113:450+ My 15 '15
 First American submarine. C: Griswold. *Sci Am S* 79:333-4 My 22 '15
 First electrically propelled submarine vessel. J. F. Waddington. *Int Marine Eng* 20:362 Ag '15
 First German submarine. *Sci Am* 111:495 D 12 '14
 First Spanish submarine. *Sci Am S* 80:229 O 9 '15
 German submarines U 8 and U 12. *il Engineer* 119:250 Mr 12 '15
 Improvements in submarines. C. N. Hinkamp. *Engineer* 119:230 Mr 19 '15
 Is there any defense against the submarine? *Sci Am* 112:152 F 13 '15
 Loading and firing submarine torpedoes. *Sci Am* 112:493 My 29 '15
 Logical results of the submarine torpedo boat. *Eng N* 73:1234-6 Je 24 '15
 Look-out for submarines. *Sci Am S* 80:311 N 13 '15

Machinery of modern submarines. A. P. Chalkley. il Sci Am 113:36+ Jl 3 '15

- Modern submarine; features of the Holland, Laubeuf, Krupp and Laurenti types; abstracts. C. A. Ward. *diag Eng M* 48:96-9 Ap '15; *Int Marine Eng* 20:276 Je '15

- Modern submarine in naval warfare. R. H. M. Robinson. *il J Fr Inst* 179:283-311 Mr '15; *Same*. *Sci Am S* 79:296-8, 312-14 My 8-15 '15
 Modern submarine; methods of control. *il Sci Am* 113:16-17 Jl 3 '15

Submarine boats—Continued

- Modern submarine torpedo boats of the United States and other navies. H. S. Howard. *II plan Eng N 73:1223-3 Ja 24 '15*
- Modern submarines in war and peace. S. Lake. *II diag plans Int Marine Eng 30:286-94, 349-55, 399-404, 450-6, 502-6, 559-62 JI-D '15 (to be cont); Excerpt. Eng M 50:104-7 O '15*
- Mother ship for submarines; a combined salvage and drydock vessel. R. G. Skerrett. *diag Sci Am 112:430 My 8 '15*
- Motive power for submerged operation of submarines. *Int Marine Eng 20:514 N '15*
- Periscope, the searching eye of the submarine. *II Sci Am 112:96 Ja 30 '15*
- Raising the F-4. J. F. Springer. *II Sci Am 112:855+ Ap 17 '15*
- Raising the submarine F-4. J. A. Furer. *II plan Eng N 74:880-4 N 4 '15*
- Reference list of parts of submarine. *II Sci Am 111:466-7 D 5 '14*
- Salvage of the submarine F-4. J. A. Furer. *II Sci Am 113:336-7+ O 16 '15*
- Salvaging sunken submarines. *II diag Sci Am S 79:232-3 Ap 10 '15*
- Submarine at sea. *II Sci Am 112:310 Ap 8 '15*
- Submarine disaster at Honolulu. *Sci Am 112:336 Ap 10 '15*
- Submarine for hydrographic work. S. Lake. *II diag Sci Am 113:273-3 S 25 '15*
- Submarine for the Austro-Hungarian navy. F. C. Coleman. *II Sci Am 112:85 Ja 23 '15*
- Submarine periscopes. E. Coustet. *II diag Sci Am S 80:269-70 O 23 '15; Abstract. Eng M 50:110-11 O '15*
- Submarine power plant. A. Hoar. *II Sibley J 30:59-63 N '15*
- Submarine propulsion. P. H. Bergreen. *Sibley J 30:71-3 N '15*
- Submarine to save a submarine. R. G. Skerrett. *II Sci Am 112:342 Ap 10 '15*
- Submarine torpedo-boat and its results. *Eng N 73:945-8 My 13 '15*
- Submarines and torpedoes. C. N. Hinkamp. *II plan Sci Am S 80:136-8 Ag 28 '15; Same cond. Engineer 120:19 JI 2 '15; Same cond. Eng N 74:898-9 O 7 '15*
- Submarines betrayed by sound waves. *II Sci Am 113:333+ O 16 '15*
- Submarines that are strictly invisible. S. Lake. *II Sci Am 112:68-9 Ja 16 '15*
- Submarines that crossed the ocean. *Sci Am S 80:293 N 6 '15*
- Trials of the submarine tender Fulton: first United States naval vessel to be fitted with Diesel engines. *II diag plans Int Marine Eng 20:76-8 F '15*
- See also* Submarine warfare; Torpedo boats
- Submarine diving. *See* Diving, Submarine
- Submarine mines. *See* Mines, Submarine
- Submarine signals
- Essenden oscillator to detect submarines. C. Moffett. *Elec R & W Elec'n 66:738 Ap 17 '15*
- Submarine signalling. *Engineer 119:446 My 7 '15; Same. Sci Am S 80:168-70 S 11 '15*
- Submarine signalling and proposed method of safe navigation in fog: abstract. F. L. Sawyer. *Int Marine Eng 20:21-2 Ja '15*
- Submarine warfare**
- Blockade by submarine. *Sci Am 112:376 Ap 24 '15*
- Modern submarine in naval warfare. R. H. M. Robinson. *II J Fr Inst 179:283-311 Mr '15; Same. Sci Am S 79:296-8, 312-14 My 8-15 '15*
- Modern submarines in war and peace. S. Lake. *II Int Marine Eng 20:503-6 N '15*
- Protection against torpedoes. *Engineer 119:41-2 Ja 8 '15; Same. Sci Am S 79:107 F 13 '15*
- Stitch in time saves nine: defense against submarines. *Sci Am 113:194 S 4 '15*
- Submarine as a commerce destroyer. *II Sci Am 112:395 My 1 '15*
- Submarine catcher. *II Sci Am 113:77 JI 24 '15*
- Von Tirpitz and his navy. *Sci Am 113:334 O 16 '15*
- See also* Mines, Submarine; Submarine boats
- Sub-press. *See* Punching machinery
- Subsidies**
- France to subsidize farm tractors. *II Automobile 33:644-5 O 7 '15*

Substations. *See* Electric plants—Substations; Electric railroads—Substations

Substitution (chemistry)

Substitution in the benzene nucleus. A. F. Holleman. *Am Chem Soc J 36:2495-8 D '14*

Subsurface structures. *See* Subways (conduits)

Suburban houses

Suburban house of stucco finish. *II diag plans Bldg Age 37:42-5 Ag '15*

Subway cars. *See* Cars, Subway

Subway stations

Downtown union subway station, New York city. *II Eng N 74:333 Ag 12 '15*

Station entrances on Boston subways. W. B. Conant. *II Munic Eng 49:13-14 JI '15*

Subway timbering

Comparative timbering costs in mine and subway. *diag Eng & Min J 100:689-90 O 23 '15*

Mine-timbering methods and falls of ground. *Eng N 74:853 O 23 '15*

Not merely mining but bridge building; the importance of diagonal bracing in subway timbering. *II diag Sci Am 113:324 O 9 '15*

Proper timbering would have prevented subway collapse. J. Seward. *Eng N 74:758-9 O 14 '15*

Public-service engineers on New York subway accidents. *Eng N 74:762-3 O 14 '15*

Recommendations for safety of subway timbering. *Eng N 74:716 O 7 '15*

Respecting subway timbering. *Eng & Min J 100:610-11 O 9 '15*

Special subway timbering on section 1, Lexington ave. route, New York. *diag Eng N 72:1218-19 D 17 '14*

Steel support of decking gives large clear space for subway work. *II diag Eng Rec 72:57-8 JI 10 '15*

Subway timbering accidents; two New York streets fall. *II diag Eng N 74:662-6 S 30 '15*

Timbering in New York subway. J. Seward. *Eng & Min J 100:890-1 N 27 '15*

Timbering in New York subway. J. Seward; P. E. Barbour. *Eng & Min J 100:686-7 O 23 '15*

Timbering in the New York subway. P. E. Barbour. *II diag Eng & Min J 100:568-70 O 2 '15*

Subways

Brooklyn bridge subway connection, New York city. *II map Eng Rec 71:74-7 Ja 18 '15*

Detail and fabrication of Harlem river tubes. T. Duckworth. *II diag Eng Soc W Pa 31:538-60. Discussion. 31:560-83 O '15*

Every type of subway construction but air tunnel used on Harlem river section. *II plans Eng Rec 71:616-19 My 16 '15*

Extension of the Bakerloo tube. *II plans map Engineer 119:29-31, 56-8, 92-4 Ja 8-22 '15*

Harlem river four-track subway tunnel. O. Hoff. *II diag map Eng Soc W Pa 31:517-37. Discussion. 31:571-83 O '15*

Heavy needling for 450-ton column loads for subway underpinning. *II diag Eng Rec 71:565-6 My 1 '15*

Lap-bolted crossbracing in wide and deep cut. *II diag Eng N 74:602 S 23 '15*

Methods used to protect the foundation of a heavy tower during adjacent subway construction in Boston. *diag Boston Soc C E J 1:408-14 S '14; Same. Eng & Contr 42:604-5 D 30 '14*

New York rapid transit railway extensions. F. Lavis. *diag Eng N 72:782-7, 858-63, 950-2, 972-8, 1068-71, 1104-9, 1150-5, 1206-10, 1294-8 O 15, 29-N 12, 26-D 17, 31 '14*

New York subway tapped for new connections while carrying heavy traffic. *II diag plan Eng Rec 72:255-7 Ag 28 '15*

New York transit contracts. *Eng Rec 70:662 D 19 '14*

Progress on the dual subway system, New York city. *Ry R 56:118-19 Ja 23 '15*

Railroads under and over the streets of New York. *II diag map Sci Am 113:46-7+, 64-5+, 96-7+ JI 10-17, 31 '15*

Short subway section in New York involves many difficulties of design. J. Glaser. *II diag Eng Rec 71:448-51 Ap 10 '15*

Signals for new Brooklyn subways. *Ry Age 57:1191 D 25 '14*

Subways—Continued

- Slice method of subway construction, Boylston street subway, Boston, Mass. 11 diags Ry R 56:521-4 My 8 '15
- Soil tests reported and safe underpinning methods in sand described. J. F. Greadhead, diags Eng Rec 72:531-3 N 20 '15
- Starting six tubes for two new East river subway crossings in New York. 11 diags Eng Rec 71:810-12 Je 26 '15
- Steel shields protect traffic during removal of New York subway roof. 11 Eng Rec 72:110-12 Jl 24 '15
- Subway undercrossing walls concreted from the top down. 11 diags Eng Rec 72:25-6 Jl 3 '15
- Tearing out a reinforced-concrete subway, New York city. 11 Eng N 72:1126-7 D 8 '14
- Unexcavated core is left in center in sinking circular subway shaft. 11 diags Eng Rec 71:522-3 Ap 24 '15
- See also* Subway stations; Subway timbering; Tunnels and tunneling

Accidents

- Collapse of street decking follows subway blast. 11 Eng Rec 72:397, 400 S 25 '15
- Collapse of streets in New York city during subway construction. 11 Ry R 57:434 O 8 '15
- Collapse of the subway work on Seventh avenue, New York city. 11 Sci Am 113:295 O 2 '15
- Danger of collapse in subways is not general. F. Lavis. Eng N 74:666-7 S 30 '15
- Disastrous burnout in a subway manhole, New York city. Sci Am 113:66 Ja 16 '15
- Dynamite explosion causes new subway cave-in in New York. 11 Elec Ry J 46:831-2 S 25 '15
- Not merely mining but bridge building; the importance of diagonal bracing in subway timbering. 11 diags Sci Am 113:324 O 9 '15
- Public-service engineers on New York subway accidents. Eng N 74:762-3 O 14 '15
- Rock slide causes second collapse of subway decking, in New York city. Eng Rec 72:429+ O 2 '15
- Rock slides greatest menace to New York subway work; report of E. S. Davis and H. H. Quimby. Eng Rec 72:461+ O 9 '15
- Safety in subway construction. Eng N 74:657-8 S 30 '15
- Safety in subway construction. Eng Rec 72:405 O 2 '15
- Severe cable burnout in the subway, New York city. Eng N 73:93 Ja 14 '15
- Subway fire inquiry and orders. Elec Ry J 45:148-9 Ja 16 '15
- Subway timbering accidents; two New York streets fall. 11 diags Eng N 74:662-6 S 30 '15
- Timbering in the New York subway. F. B. Barbour. 11 diags Eng & Min J 100:568-70 O 2 '15
- Unjust criticism of the subway system of New York. Sci Am 112:62 Ja 16 '15

Safety devices and measures

- Increasing safety of rapid transit in New York city. Eng N 73:236 F 4 '15
- Safety conditions in Boston subways. Elec Ry J 46:159-60 Jl 24 '15
- Safety precautions in New York subway; report made to the mayor by the city fire department; abstracts. Elec Ry J 46:601 S 18 '15; Eng N 74:572 S 16 '15

Ventilation

- Extension of the Bakerloo tube. 11 plans Engineer 119:92-3 Ja 22 '15
- Proposed subway ventilators. Metal Work 83:270-1 F 12 '15
- Subway ventilation. J. G. Dudley. plan Heat & Ven 12:42-3 O '15
- Subway ventilation schemes. 11 diags Heat & Ven 12:13-16 Ag '15

Subways (conduits)

- Chicago builds its first utility gallery. plan Eng Rec 72:593-4 N 13 '15
- Comparative merits of four types of location of underground utility lines. L. A. Dumond. Eng & Contr 44:367-9 N 3 '15
- Design and construction features of Chicago's first utilities gallery. 11 diags Eng & Contr 44:376-7 N 10 '15

How shall provision be made for subsurface structures? Eng Rec 70:683 D 26 '14

Pipe subways for the public utilities of Chicago. L. A. Dumond. Eng Rec 70:705-6 D 26 '14

Subways for public-utility pipes and wires in Chicago streets. Eng N 73:60-1 Ja 14 '15; Same. Am Gas Light J 102:76 F 1 '15

Underground utility galleries for downtown Chicago. J. W. Alvord and C. B. Burdick. Eng Rec 71:53-4 Ja 9 '15

Subways (streets)

- Cutting a city street through a railway station, Springfield, Mass. 11 diags plan Eng N 74:286-8 Ag 13 '15
- Difficult grade crossing elimination in Albany, N. Y. 11 diags plan Ry Age 59:961-3 N 19 '15
- Factors in grade separation. Eng N 73:422-3 Mr 4 '15
- Methods and costs of constructing Bay street underpass at Macon, Ga. C. H. Fuller. 11 diags Concrete Cem 6:75-8 F '15

Success

- How to fail. F. D. Van Amburgh. Metal Work 83:500-1+ Ap 3 '15; Same. Dom Eng 71:187-9 My 15 '15
- Measure of success—responsibility. Sibley J 29:166-9 F '15

See also* Leadership*Sucrose**

- Direct and the invert polarization of pure sucrose. H. S. Walker. J Ind & Eng Chem 7:218 Mr '15

Suction between passing ships. S. A. Reeve. diags Sci Am S 79:30-2, 46-8, 62-4 Ja 9-23 '15

Sudan, Egyptian

Development of the Sudan. 11 map plans diags Engineer 119:271-4 Mr 19 '15

Sugar

- Combustion calorimetry and the heats of combustion of cane sugar, benzoic acid, and naphthalene. H. C. Dickinson. biblig U S Bur Stand Bul 11:189-267 Mr 1 '15
- Contributions of the chemist to the sugar industry. W. D. Horne. J Ind & Eng Chem 7:278-9 Ap '15
- Efficiency of various methods for the filtration of sugar solutions. A. E. Roberts. diags J Ind & Eng Chem 6:986-9 D '14
- Transforming sugar into proteins and fats. H. W. Hillyer. Sci Am 113:440+ N 20 '15
- See also* Beets and beet sugar; Glucose; Syrups

Manufacture

- Engineer of modern sugar plantation has to deal with varied problem; plant of Niquero company in Cuba. S. Vickers. 11 plan map Eng Rec 72:534-6 O 30 '15
- Performance tests of sugar-house heating and evaporating apparatus. E. W. Kerr, J. F. Gunther and W. A. Tolsten. diags Met & Chem Eng 13:455-52, 506-7 Ag '15
- Sugar industry. C. A. Kelsey. Am Inst El El Pro 34:3039-44 D '15

Sugar beet. *See* Beets and beet sugar

Sugar maple. *See* Maple

Sugars

- Hydrolysis of sugar solutions under pressure. W. S. Hubbard and W. L. Mitchell. J Ind & Eng Chem 7:609-10 Jl '15
- Volumetric Fehling method using a new indicator. A. M. Breckler. J Ind & Eng Chem 7:37-8 Ja '15

***See also* Maltose**

Sulfur. *See* Sulphur

Sulphates

- Determination of sulfates in soils. P. E. Brown and E. H. Kellogg. J Ind & Eng Chem 7:686-7 Ag '15
- Formation and decomposition of sulphates during roasting. B. Dudley, jr. Met & Chem Eng 13:221-6, 303-8 Ap-May '15

Sulphides

- Action of thionyl chloride on sulfides. H. B. North and C. B. Conover. Am Chem Soc J 37:2486-80 N '15
- Cyanidation of low-grade sulphide ores in Colorado. H. C. Parmelee. 11 plan Met & Chem Eng 13:421-5, 477-9 Jl-Ag '15

Sulphides—Continued

- How sulphides may exist in steel ingots. J. O. Arnold and G. R. Bolsover. *Iron Tr R* 57: 787-8 O 14 '16; Discussion. G. F. Comstock. *Iron Tr R* 57:894+ N 4 '15
- Origin and occurrence of certain crystallographic intergrowths. J. Segall. 2 pls *Econ Geol* 10:462-70 J1 '15
- Oxidation of sulphides with potassium iodate. R. S. Dean. *Am Chem Soc J* 87:1134-7 My '15
- Processes of mineralization and enrichment in the Tintic mining district. W. Lindgren. 2 pls *Econ Geol* 10:226-40 Ap '15
- Rate of reduction of acidity of descending waters by certain ore and gangue minerals and its bearing upon secondary sulphide enrichment. G. S. Nishihara. 11 *Econ Geol* 9:743-67 D '14
- Sulphide-bearing rocks from Litchfield, Conn. E. Howe. *diags Econ Geol* 10:330-47 Je '15
- Treatment of arsenical-antimonial sulphide ore; abstract. K. B. Moore and H. R. Edmands. *Met & Chem Eng* 13:508-9 Ag '15

See also Chalcocite

Sulphite-solution plant. See Paper making and trade

Sulphonates

- Study of the reaction of alkali salts of sulfonic acids with alkali phenolates by dry distillation. E. H. Nollau and L. C. Daniels. *Am Chem Soc J* 36:1886-91 S '14

Sulphonation

- Addition compounds of organic substances with sulfuric acid. J. Kendall and C. D. Carpenter. *Am Chem Soc J* 36:2498-517 D '14

Sulphur

- Blow holes and sulphur. R. A. Pitman. *Foundry* 43:95-6 Mr '15
- Comparative study of methods for the quantitative determination of sulfur in peptone. H. W. Redfield and C. Huckle. *Am Chem Soc J* 37:607-11 Mr '15
- Controlling the sulphur in melting pig iron. W. M. Carr. *Foundry* 43:189-90 My '15
- Equilibrium between carbon oxysulfide, carbon monoxide and sulfur. G. N. Lewis and W. N. Lacey. *diag Am Chem Soc J* 37:1976-83 S '15
- Estimation of selenium in sulfur. W. Smith. *J Ind & Eng Chem* 7:849-50 O '15
- Free energy of the various forms of elementary sulfur. G. N. Lewis and M. Randall. *Am Chem Soc J* 36:2468-75 D '14
- Molecular weight of sodium sulfate and the atomic weight of sulfur. T. W. Richards and C. R. Hoover. *Am Chem Soc J* 37:108-13 Ja '15
- Origin of the sulphur deposits of Sicily. W. F. Hunt. 11 *Econ Geol* 10:543-79 S '15
- Production of elemental sulphur. C. H. Fulton. *U S Bur Mines Bul* 84:70-7 '15
- Quantitative determinations of sulfur in the culture medium for the detection of the bacteria producing hydrogen sulfide. H. W. Redfield and C. Huckle. *Am Chem Soc J* 37: 612-23 Mr '15
- Recent methods for the determination of total sulphur in rubber. J. B. Tuttle and A. Isaacs. *U S Bur Stand Tech Pa* 45:1-16 '15; Same. *J Ind & Eng Chem* 7:658-63 Ag '15
- Recovery of elemental sulphur. *Eng & Min J* 100:229 Ag 7 '15
- Results of some co-operative work on determination of sulfur in pyrites. H. C. Moore. *J Ind & Eng Chem* 7:634-6 J1 '15
- Sicilian sulphur industry. *Eng & Min J* 100: 466-7 S 18 '15
- Sulphur as a conductor. C. A. Butman. *Elec W* 64:1256 D 26 '14
- Sulphur in coal. *Elec W* 65:350-1 F 6 '15
- Sulphur in malleable cast iron. R. H. Smith. *Iron Age* 96:1235 N 25 '15
- Sulphur dioxide**
- Effect of sulphur dioxide on human beings. *Eng & Min J* 100:885-6 N 27 '15
- Exact determination of sulphur dioxide in air. J. R. Marston. *Eng & Min J* 100:726-7 O 30 '15
- Methods for removal of sulphur dioxide from smelter smoke. C. H. Fulton. 11 *U S Bur Mines Bul* 84:65-7, 77-82 '15

- Range of applicability of the liquid sulphur dioxide method for determining aromatic constituents in hydrocarbon mixtures. W. F. Rittman and R. J. Moore. *diag Met & Chem Eng* 13:713-14 O 15 '15
- Report of the Selby smelter commission. *J Ind & Eng Chem* 7:41-5 Ja '15; Same cond. *Eng & Min J* 98:1076-8 D 19 '14

Sulphur Springs, Arkansas

Spring deposits at Sulphur Springs, Ark. C. E. Siebenthal. *Econ Geol* 9:758-67 D '14

Sulphuric acid

- Absorption of gasoline vapor in natural gas by fuming sulfuric acid. R. P. Anderson and C. J. Engelder. *J Ind & Eng Chem* 8:989-92 D '14
- Addition compounds of organic substances with sulfuric acid. J. Kendall and C. D. Carpenter. *Am Chem Soc J* 36:2498-517 D '14
- Apparatus for the concentration of sulphuric acid. W. Mason. *diags Met & Chem Eng* 13:17-18 Ja '15
- Comparison of the relative drying powers of sulfuric acid, calcium chloride and aluminum trioxide when used in ordinary Scheibler desiccating jars. J. W. Marden and V. Elliott. *J Ind & Eng Chem* 7:320-1 Ap '15
- Fused silica dishes for the concentration of sulphuric acid. A. E. Marshall. *diag Met & Chem Eng* 13:186-7 Mr '15
- Manufacture of sulphuric acid from smelter smoke. C. H. Fulton. 11 plan *U S Bur Mines Bul* 84:67-70 '15
- Sulphuric-acid manufacture in Great Britain. *Eng & Min J* 99:488 Mr 6 '15

Sun

- Causes of solar heat. A. Veronnet. *Sci Am S* 79:91 F 6 '15
- Flammarion talks on the sun. *Sci Am* 112:146-8 F 6 '15
- Sun drawing water. *Sci Am* 112:86 Ja 16 '15
- See also Electricity, Solar; Solar power plants; Solar radiation

Sun dials. See Sundials

Sun power plants. See Solar power plants

Sundials

- Universal sun-dial. 11 *Sci Am* 112:246 Mr 13 '15

Sunflowers

- Lightest known vegetable substance. *Sci Am* 113:450 N 20 '15

Superheated ammonia

- Effect of superheated ammonia on compressor capacity. H. R. Howell. *Power* 42:646-7 N 9 '15

Superheated steam

- Specific heat of superheated steam at pressures from 8 to 20 atmospheres, and from temperature of saturation to 380 deg. cent.; abstract. O. Knoblauch and A. Winkhaus. *Am Soc M E J* 37:409-10 J1 '15
- Specifications for alloys for high-speed superheated steam turbine blading. W. B. Parker. 11 *Engineer* 120:441-3 N 5 '15
- Superheat for Corliss engines. E. R. Pearce. *Power* 40:886 D 22 '14
- Superheat in vertical fire-tube boilers. S. P. Stewart. *Power* 42:582-6 O 26 '15
- Superheated steam in torpedo-boat engines. W. H. Miller. *Sci Am* 112:33+ J1 3 '15
- Superheated steam unit; some remarkably economical German engines. W. H. Miller. 11 *Sci Am* 112:290-1+ Mr 27 '15
- Use of superheated steam. L. P. St. Cyr. *Power* 42:87-8 J1 20 '15
- What causes the high efficiency of locomotives? E. R. Pearce. *Power* 41:633 My 11 '15; Same (Superheated steam engines) *Sci Am S* 80: 304 N 6 '15

Superheaters

- Lovekin marine boiler and internal superheater. A. B. Willis. *diags Power* 42:293-5 Ag 31 '15
- Robinson marine superheater. 11 *diags Engineer* 119:286-7 Mr 19 '15

See also Locomotives—Superheaters

Supersaturated solutions. See Solutions, Supersaturated

Surface combustion. See Combustion, Surface

Surface tension. See Capillarity

Surge tanks

- Concrete surge tank, disconnected at base, operates on differential principle. *Il diag Eng Rec* 71:368-70 Mr 20 '15
 Results with a novel surge tank. *diag Eng N* 73:687 Ap 8 '15
 Tall-tunnel regulation suggests new opportunities in hydroelectric field. R. D. Johnson. *Eng Rec* 71:380 Mr 20 '15
 Tests check computed values of surges; investigations at Tallulah Falls hydroelectric plant in Georgia indicate accuracy of formulae commonly used. E. Lauchli. *diag Eng Rec* 71:378-9 Mr 20 '15

Surgery

- New method of disinfecting wounds. *Sci Am* S 80:111 Ag 14 '15
 Prehistoric man and his early efforts to combat disease. T. W. Parry. *Il Sci Am* S 78:365-6 D 5 '14
See also Anesthetics; Bandages and bandaging; First aid in illness and injury; Fractures; Surgery, Military; Surgical instruments; Wounds

Surgery, Military

- Mechanics of convalescence; methods of hastening the cure of German wounded soldiers. W. Bannard. *Il Sci Am* 112:404 My 1 '15
 Military surgery. *Sci Am* 113:178 Ag 28 '15
 Military surgery: lessons taught by the present war. *Sci Am* S 79:54 Ja 23 '15
 Roentgenology in war. *Il Sci Am* S 79:68 Ja 30 '15
 X-Ray work in war. *Il Sci Am* S 79:120-1 F 20 '15

Surgery, Primitive

- Progress of surgery as shown by military medical service in ancient times. N. Lallie. *Il Sci Am* S 80:356-7 D 4 '15

Surgical Instruments

- Electro-magnet for removing particles of iron from the flesh. *Il Mach* 21:601 Mr '15; *Elec R & W Elec'n* 66:508 Mr 13 '15; *Iron Age* 95:452 F 26 '15; *Iron Tr R* 56:525 Mr 11 '15; *Sci Am* S 79:168 Mr 13 '15
 Use of the Hughes induction balance for locating bullets. *diag Elec W* 65:167 Ja 16 '15

Survey markers

- Practice in city survey monuments and benchmarks. *Eng N* 73:269-70 F 11 '15

Surveying

- Aids to traverse computations. H. Andrews. *Eng N* 74:940-1 N 11 '15
 Coiling a long tape by figure-eight method. H. N. Bradstreet. *Eng N* 73:939 My 13 '15
 Computation of survey traverses. H. Andrews. *Eng N* 74:268-9 Ag 5 '15
 Do surveyors use traverse tables? *Eng N* 73:1038-9 My 27 '15
 Examples of stadia surveying and its broader uses with special reference to preliminary hydraulic surveys. W. B. Saunders. *Eng & Contr* 43:570-2 Je 30 '15
 History of steel tapes. *Eng N* 72:1316-17 D 31 '14
 Land classification surveys of irrigable tracts. K. A. Heron. *Eng N* 73:1039 My 27 '15
 Method and cost of making a drainage survey for the Washington Bayou drainage district, Mississippi. O. W. Melin. *map Eng & Contr* 44:92-5 Ag 4 '15
 More about traverse tables and survey computations. E. E. Thum. *Eng N* 74:124-5 J1 15 '15
 New street line monuments at Pittsburgh, Pa. *diag Eng & Contr* 43:574 Je 30 '15
 Notes on errors in survey work. A. W. Bedell. *Eng N* 72:1171 D 10 '14; *Same. Eng & Min J* 99:14-15 Ja 2 '15
 Practice in city survey monuments and benchmarks. *Eng N* 73:269-70 F 11 '15
 Record leveling on geodetic survey. W. Bowie. *Eng Rec* 71:307 Je 26 '15
 Simple method of cross-sectioning employed on ditch work. B. L. Parker. *Eng & Contr* 43:443 My 19 '15
 Solar declinations computed by graphic method. R. R. V. Reynolds. *Eng Rec* 72:160 Ag 7 '15

- Supplementing the Canadian public land surveys by rapid stadia work. J. A. Macdonald. *Eng N* 73:399-400 F 25 '15

See also Civil engineering; Mine surveying; Railroad engineering; Railroad surveying; Steel tape; Surveying instruments; Topographical drawing

Surveying, Hydrographic. *See* Hydrographic surveying

Surveying, Magnetic. *See* Magnetic surveying

Surveying, Mine. *See* Mine surveying

Surveying, Topographical. *See* Topographical surveying

Surveying Instruments

- Account of micrometers for measuring distances. J. Watt. *Eng N* 73:471 Mr 11 '15
 New features in surveying instruments. *Il Eng N* 74:198-200 J1 29 '15
 New Smith solar attachment. A. D. Kidder. *Il Eng N* 73:1068-70 Je 3 '15
 Quick solar reduction by slide rule. *Il Eng N* 74:267 Ag 5 '15; *Same. Eng & Min J* 100:353 Ag 23 '15
 Testing surveyors' tapes by the Canadian government. J. A. Macdonald. *Il Eng N* 74:414-15 Ag 26 '15
See also Compass; Stadiagraph; Transit, Surveyors

Surveyors

- Licensing land surveyors in the Canadian provinces. J. A. Macdonald. *Eng N* 73:1168 Je 17 '15

Suspended railways

- Aerial monorail; Mühl system for high speed suspended electrical trains. *Il Sci Am* 112:292 Mr 27 '15

See also Cableways; Telpherage

Suspension bridges. See Bridges, Suspension**Swasey, Ambrose, 1846-**

- Donor of the initial gift to the Engineering foundation. *Am Soc M E J* 37:vii-viii F '15
 Engineering foundation established. *por Iron Age* 95:289-90 F 4 '15
 Engineering foundation started with \$200,000 gift. *por Eng Rec* 71:153-4 Ja 30 '15
 Foundation rests on broad ideas. *por Iron Tr R* 56:289-90 F 4 '15

Swedish wrought iron. See Wrought iron**Sweeping machines**

- Small sweeping machines for power and hand operation. *Il Eng N* 74:727 O 14 '15

Sweet, John Edson, 1832-

- John Fritz medal award. *por Am Soc M E J* 37:36-8 Ja '15

Swimming pools

- Concrete natatorium for Chicago school children. *plan Dom Eng* 72:229 Ag 21 '15
 Construction, mechanical installation, water supply, heating the water, various types of installations. A. G. King. *diag Dom Eng* 69:63-5, 126-8, 189-91, 284-6, 318-20; 70:34-5, 101-2 O 17, 31, N 14, 28, D 12 '14, Ja 9, 23 '15
 Construction of concrete swimming pool at Rockledge, Florida. *Il diag Concrete Cem* 6:148-9 Mr '15
 Design features of reinforced concrete swimming pool at Riverview park, Chicago. *plan Eng & Contr* 44:357 N 3 '15
 Details of an open-air swimming pool. *Il diag Bldg Age* 37:51-2 My '15
 Disinfection of swimming pools with copper sulphate. *Sci Am* S 80:352 N 27 '15
 Municipal swimming pool, Grand Rapids, Wis. *Eng N* 74:821 O 28 '15
 Natatorium in the Evander Childs' high school, New York city. E. R. Porter. *plans Dom Eng* 73:134-7 O 30 '15
 Plumbing equipment of swimming pool, Louisville, Ky. *Il plan Metal Work* 83:288-90 F 19 '15; *Same. Bldg Age* 37:39-40 J1 '15
 Plumbing work in Harvard club of New York. *Il plan Metal Work* 84:605-7 N 12 '15
 St. Louis builds large swimming pool. *diag Metal Work* 83:727 My 21 '15
 Salt water swimming pool at Salem, Mass. *Il Munic J* 39:224 Ag 12 '15
 South side bath house, Pittsburgh, Pa.; views and plans. *Brickb* 24:pl 101-2 J1 '15

Swimming pools—Continued

- Swimming pool building for Helen Miller Gould, Irvington, N. Y.; views and plans. Arch Rec 38:171-6 J1 '15
 Swimming pool of Pittsburgh athletic club. *Il Metal Work* 84:522-3 O 22 '15
 Use of copper sulfate in the purification of swimming pools. S. J. Thomas. *J Ind & Eng Chem* 7:496-9 Je '15
 Wealthy Californian's swimming pool de luxe. *Il plan Metal Work* 83:796-8 Je 4 '15

Swine**Transportation**

- Cooling hogs in transit. *diags Ry Age* 58:752 Ap 2 '15

Swing bridge. See Drawbridges**Swiss commercial and industrial association**

- Commercial organizations in Switzerland. A. J. Wolfe. *U S Bur For & Dom Com* 101:13-17 '15

Switchboards

- Alternating-current switchboard costs. J. Willmore. *diags Elec W* 66:414 Ag 21 '15
 Barrier cutout panels and cabinets. *Il Elec R & W Elec'n* 67:772 O 23 '15
 Concrete switchboard. J. R. Chapman. *Il Power* 42:311 Ag 31 '15; Same. *Eng & Min J* 100:476-7 S 18 '15
 Cutler-Hammer charging panels. *Il Elec R & W Elec'n* 67:732-4 O 16 '15
 Furnishing electric service in Louisville for \$2.99. *Il Elec R & W Elec'n* 67:319-20 Ag 21 '15
 Incident that shows the importance of correct synchronizing connections. E. C. Farham. *Elec W* 66:766 O 2 '15
 Indicating thermometers part of switchboard equipment. *Il Elec W* 65:421 F 13 '15
 Method of anchoring and tightening switchboard instrument buses. C. H. Sanderson. *diags Elec W* 66:753 O 3 '15
 New toll switchboard for Tampa. *Il Elec R & W Elec'n* 65:1230 D 26 '14
 Panel box for industrial plants. C. J. Whitfield. *diags Elec W* 66:73-4 J1 10 '15
 Power plant of new Lumber exchange building, Chicago. T. Wilson. *Il Power* 41:769-70 Je 8 '15

- Recent developments in switchboard apparatus. E. H. Beckert. *Il diags Gen Elec R* 18:646-57 J1 '15

- Supplying of power to the Quaker oats company. J. M. Drabelle. *Il diag Gen Elec R* 18:42-4 Ja '15

- Switchboard fittings. *Il Elec Ry J* 46:835-6 O 16 '15

Switches, Railroad. See Railroads—Switches, frogs, etc.**Switzerland**

See also Electric railroads—Switzerland

Commerce

- Commercial organizations in Switzerland and the Swiss department of commerce. A. J. Wolfe. *U S Bur For & Dom Com* 101:1-28 '15

Commerce, Department of

- Commercial organizations in Switzerland and the Swiss department of commerce. A. J. Wolfe. *U S Bur For & Dom Com* 101:30-6 '15

Symbols, Electric. See Electric symbols**Symbols, Foundry. See Foundry symbols****Symbols, Mnemonic**

- Efficiency in the stores department. W. G. Astle. *Elec Ry J* 46:907 O 30 '15; Same cond. (Storeroom organization and management). *Iron Age* 96:458-60 Ag 26 '15; Same cond. *Metal Work* 84:333-4 S 10 '15

- Operating a foundry on a scientific basis. F. A. Parkhurst. *Foundry* 42:479-88 D '14

- Pattern storage systems for factories. J. G. Shirley. *Iron Age* 96:304-5 Ag 5 '15

Synchronous converters. See Rotary converters**Synchrosopes**

- Electrostatic potential and synchronism indicators. *Il Elec Ry J* 46:326 Ag 21 '15; *Elec R & W Elec'n* 67:251-2 Ag 7 '15; *Elec W* 66:310-11 Ar 7 '15; *Power* 42:271-2 Ag 24 '15

- Large synchrosopes facilitate station operation at Springfield, Mass. *Il Elec W* 65:1261 My 15 '15

Synthetic stone. See Concrete stone**Synthetic stones. See Precious stones, Synthetic****Syria. See Railroads—Syria****Syrups**

- Hydrolysis of sugar solutions under pressure. W. S. Hubbard and W. L. Mitchel. *J Ind & Eng Chem* 7:609-10 J1 '15
 Tamarind syrup. W. C. Taber. *J Ind & Eng Chem* 7:607-9 J1 '15

See also Apple syrup

T**Tabulating machines. See Calculating machines****Tachograph**

- Records of speed variation. F. B. Steele. *Il Elec W* 65:1687-8 Je 26 '15

Tachometers

- Electric tachometer. *Il Eng M* 48:sup4-5 F '15
 Esterline electric speed indicator. *Il Elec R & W Elec'n* 66:829-30 My 1 '15; *Elec Ry J* 45:897 My 8 '15
 Portable triple-scale electric tachometer. *Il Elec W* 66:487-8 Ag 23 '15

Tahiti

- Historical sketch, resources and social life. E. T. Allen. *Il Am For* 20:870-80 D '14

Tailings

- Chart for determining tailings value. W. J. McCauley. *Eng & Min J* 99:575 Mr 27 '15
 Elevating placer tailings with a Hayward bucket. H. I. Ellis. *Eng & Min J* 100:309-10 Ag 21 '15
 Mears-Wilfley tailings mill. W. C. Prosser. *Il Eng & Min J* 99:607-8 Ap 3 '15
 Multiple-arch dam to retain quartz mill tailings. *Il Eng N* 73:818-19 Ap 29 '15
 Recovery of mercury from amalgamation tailings. Buffalo mines, Cobalt. E. B. Thornhill. *flow sheet Am Inst Min E Bul* 104:1663-7 Ag '15; Abstracts. *Met & Chem Eng* 13:873, 896 N 15-D 1 '15; Discussion. *Am Inst Min E Bul* 108:2455 D 15
 Roasting and leaching concentrator slimes tailings. L. Addicks. *Il flow sheet Am Inst Min E Bul* 103:1471-84 Ag '15; Same. *Met & Chem Eng* 13:551-5 S 1 '15; Discussion. *Am Inst Min E Bul* 108:2460-4 D '15
 Temporary traveling cableway for tailings reclamation. *Il Eng & Min J* 100:673 O 23 '15

Talc

- Talc and soapstone in 1914. *Eng & Min J* 100:435 S 11 '15

Tamalpais, Mt.

- Tackling Tamalpais. F. E. Olmsted. *Il Am For* 20:887-93 D '14

Tamarinds

- Tamarind syrup. W. C. Taber. *J Ind & Eng Chem* 7:607-9 J1 '15

Tamping machines

- Mechanical trench tamping. W. A. Kellogg. *Il Munic Eng* 49:39-40+ J1 '15
 Pneumatic tie tamper. *Il Ry Age* 58:473-4 Mr 12 '15
 Pneumatic track tamping. *Il Eng Rec* 70:689 D 26 '14
 Tamping track with air power. *Il Eng N* 72:1219 D 17 '14

Tank cars

- Carriers must furnish tank cars. *Ry R* 56:855-6 Je 19 '15
 Handling of fuel oil in extreme climatic conditions; abstract. *Am Soc M E J* 37:420 J1 '15

Tank ships

- Conversion of cargo vessels into bulk oil carriers. F. K. Ruprecht. *diags Int Marine Eng* 20:165-6, 212-16, 268-9, 309-11, 340-3, 404-6 Ap-S '15
 Evolution of the oil tank ship; abstracts. H. Barringer. *Engineer* 119:560 Je 4 '15; *Int Marine Eng* 20:417 S '15

Tank ships—Continued

- Launch of the Gulfcoast. *Il Int Marine Eng* 20: 199 My '15
 Motor boat Kern. *Il plan Int Marine Eng* 20: 489 N '15
 Tank ship construction. R. W. Morrell. *diags Int Marine Eng* 19:532-4; 20:26-9, 71-3 D '14, Ja-F '15

See also Gulfight

Tanks

- Calibration charts for Vanderbilt tenders. T. Price. *Ry Age (Mech ed)* 89:563-5 N '15
 Calibration curve for horizontal cylindrical tanks. *Met & Chem Eng* 13:511 Ag '15
 Capacity of cylindrical tanks; a rapid means of determining the contents of tanks of all of the usual lengths and diameters. *Horseless Age* 36:76 J1 21 '15

See also Coal tanks; Hot-water tanks; Septic tanks; Sewage tanks; Surge tanks; Tank cars; Tank ships; Water tanks

Tanks, Concrete

- Concrete tanks for dye-houses. L. C. Wason; W. M. Kinney. *Concrete Cem* 6:159 Mr '15
 Concrete tanks for dye houses. R. R. Newman. *Concrete Cem* 7:82 J1 '15
 Concrete vats and tanks. W. M. Kinney. *Concrete Cem* 6:158-9 Mr '15
 Oil-proof reservoirs of concrete. W. M. Kinney. *Concrete Cem* 6:251-2 My '15
 Reinforced-concrete tank of 100,000-gallon capacity designed by use of diagrams. A. R. James. *diags Eng Rec* 72:136-6 J1 31 '15

See also Water towers, Concrete

- Tanks, Sewage. *See* Imhoff tanks; Septic tanks; Sewage tanks

Tanks, Steel

- Galvanized corrugated steel tanks in Australia. H. W. Mitton. *Metal Work* 83:702 My 14 '15
 Moving large steel grain tanks. *Il Sci Am* 113: 185 Ag 28 '15
 Rebuilding a burned oil tank. C. P. Bowle. *Il Eng N* 74:976-7 N 18 '15

Tanning

- Contributions of the chemist to the leather industry. W. H. Teas. *J Ind & Eng Chem* 7: 283 Ap '15

Tannins

- Tannin content of Pacific coast conifers. H. K. Benson and T. G. Thompson. *Il J Ind & Eng Chem* 7:916-16 N '15

Tantalum

- Atomic weight of tantalum. G. W. Sears and C. W. Balke. *diags Am Chem Soc J* 37:833-44 Ap '15

Tapalogs

- Tapalog, a new multiple record pyrometer recorder. *Il Met & Chem Eng* 13:260-1 Ap '15; *Iron Age* 95:609 Mr 18 '15; *Elec W* 65:371 Ap 3 '15; *Power* 41:541 Ap 20 '15

- Tape, Insulating. *See* Insulating tape

- Tape, Steel. *See* Steel tape

Tapping machines

- Langeller semi-automatic multiple tapping machine. *Il Mach* 21:426-6 Ja '15
 National automatic nut tapper. *Il Mach* 21: 515-17 F '15; *Iron Age* 95:240 Ja 28 '15; *Iron Tr R* 56:268-9 F 4 '15; *Ind Eng* 15:11-12 Ja '15

- New principle in nut tapping machinery. *diag Ry R* 56:812-13 Je 12 '15

- Tapping and countersinking machine. *Il Iron Age* 95:515 S 2 '15

Taps

- A. S. M. E. tap limits. *Mach* 21:474-5 F '15
 Collapsible tap of new design, by the modern tool co. *Il diags Iron Tr R* 57:692-3 O 7 '15; *Ry Age (Mech ed)* 89:544-5 O '15

- Collapsing adjustable shrapnel tap. *Il Iron Age* 96:745 S 30 '15

- Collapsing tap for shell work. *diag Iron Tr R* 57:447 S 2 '15

- Tap and screw limits. *diags Mach* 22:54-7 S '15

- Victor shrapnel shell tap. *Il diag Mach* 22:70 S '15

Tar

- Centrifugal dehydration of water gas tar at Amsterdam. *Am Gas Light J* 102:349 My 31 '15

- Development of refined tars for use in road construction and maintenance. P. F. Sharples. *Met & Chem Eng* 13:918-20 D 1 '15

- Electrical process for detarring gas. F. W. Steere. *Il diag Met & Chem Eng* 12:776-8 D '14; *Same. Am Gas Inst Pro* 9:pt 1, 178-89 '14; *Same cond. Eng N* 72:1007 N 19 '14; *Same cond. Eng M* 49:786-9 F '15; *Discussion. Am Gas Inst Pro* 9:pt 1, 189-99 '14

- Oil tar separation, recovery and disposal. R. El. Wyant. *Am Gas Inst Pro* 9:pt 1, 813-19; *Discussion*. 319-39 '14

- Physical constants of gas oils and derived tars. W. F. Rittman and G. Egloff. *J Ind & Eng Chem* 7:481-4 Je '15

- Specific gravity—its determination for tars, oils and pitches. J. M. Weiss. *Il J Ind & Eng Chem* 7:21-4 Ja '15

- Tar paint proves better than lead paint on pipes. B. Dibble. *Eng Rec* 72:349-50 S 18 '15; *Same. Eng N* 74:373-4 N 18 '15; *Same cond. Eng & Contr* 44:181 S 8 '15

See also Coal tar; Gas manufacture and works; Roads, Tarred

Tar as fuel

- Heating an open-hearth furnace by tar. A. Greiner. *Iron Age* 95:1072-3 My 13 '15; *Same. Engineer* 119:495 My 14 '15; *Same. Iron Tr R* 56:1017-18 My 20 '15; *Abstract. Met & Chem Eng* 13:445 J1 '15

Target practice

- Target practice in our navy. *Sci Am* 113:58 J1 17 '15

See also Rifle ranges

Tariff

- Anti-dumping legislation in Canada, South Africa, and Australia. *Textile World* 50:176-9 N '15

- Tariff and the ultimate consumer. H. C. Emery. *Textile World* 50:179-83 N '15

See also Drawbacks

Canada

- Canada's new tariff. *Iron Age* 95:538 Mr 4 '15
 Working of Canada's anti-dumping law. *Iron Age* 96:758-9 S 30 '15

India

- British India. *U S Sp Cons Rep* 72:135-7 '15

United States

- Component material of chief value. *Il Textile World* 50:51-4 O '15

- Home market club annual meeting. Nov. 18, 1914. *Textile World* 48:302-4 D '14

- Lest we forget! Who killed Cock Robin? The U. S. tariff-history of coal-tar dyes. B. C. Hesse. *J Ind & Eng Chem* 7:694-709 Ag '15; *Excerpts. Textile World* 49:593-6 S '15

- Letters of Messrs. Tripp and Matthews on business conditions. W. F. Hickernell. *Elec W* 65:972-3 Ap 17 '15

- Necessity of tariff reform for the American chemical industries. H. H. Gross. *Met & Chem Eng* 13:678 O 1 '15

- Who killed Cock Robin? notes on the tariff history of coal-tar dyes. *Sci Am* S 80:135 Ag 28 '15

See also Cotton tariff

- *Tarred roads. *See* Roads, Tarred

Tartaric acid

- Manufacture of cream tartar. O. Best. *Met & Chem Eng* 13:613-17 S 15 '15

Task system

- Results of task work without bonus in cleaning filter sand at Philadelphia. S. E. Thompson. *Eng Rec* 70:608-9 D 5 '14; *Same. Eng & Contr* 42:579-81 D 28 '14; *Same cond.; with discussion. Am Soc M E J* 37:102-4 F '15; *Same cond. (Efficiency study of filter cleaning). Munic J* 38:253-4 F 25 '15

- Task setting. C. J. Morrison. *Eng M* 49:894-900 S '15

See also Bonus system

Taxation

New York tax list: fluctuation of real estate values due to lack of regulation of the character of buildings. *Am Inst Arch J* 2:572-8 D '14

Taxes in Colombia. J. F. Dierolf. *Eng & Min J* 99:874 My 15 '15

See also Electric railroads—Taxation; Income tax; Mine taxation; Municipal finance; Public service corporations—Taxation; Tar-iff

Taxicabs, Electric

Electric taxicabs. A. J. Marshall. *Elec R & W Elec'n* 66:696-6 Ap 10 '15

Electric taxicabs in Detroit reduce operating costs 40 per cent. *Il Elec R & W Elec'n* 67:871-2 N 6 '15

Why electric taxicabs should succeed. I. S. Scrimger. *Automobile* 33:760-1 O 21 '15

Taylor, Frederick Winslow, 1856-1915

Father of scientific management and co-inventor of high-speed steel. *por Iron Age* 95:676-8 Mr 25 '15

Great engineer passes away. *por Iron Tr R* 56:604-6 Mr 25 '15

Memorial meeting of the Society to promote the science of management. *Iron Age* 90:1029-30 O 28 '15

Memorial meeting of the Society to promote the science of management. *Iron Tr R* 57:827 O 28 '15

Sketch. H. R. Towne. *por Eng M* 49:160-3 My '15

Tea rooms and tea houses

Assembly tea rooms, Boston; views. *Arch Rec* 37:83-7 Ja '15

Teachers, Training of

Training of shop teachers for industrial schools. H. E. Speece. *Mach* 22:47-8 S '15

Teak wood

Mechanical properties of teak wood; abstract. A. Weiskopf. *Am Soc M E J* 87:289-90 My '15

Technical commissioners. See Consular service**Technical education**

New ideas in mechanical education. *Mach* 22:164-5 O '15

Technical training in India. *Engineer* 120:429-30 N 5 '15

Training for the industrial side of engineering. A. P. M. Fleming. *Inst E E J* 53:570-3; Discussion. 53:574-86 Ap 15 '15

See also Apprentices; Correspondence schools and courses; Engineering education; Foundry practice—Study and teaching; Industrial education; Mining schools and education; Professional education; Railroad education; Schools and shops, Cooperation of; Trade schools; Vocational education; also Throop college of technology

Technical journals. See Engineering periodicals**Technical literature, Joint committee on classification of. See Joint committee on classification of technical literature****Technical writing**

Bettering the use of English. S. C. Earle. *Elec Ry J* 45:94 Ja 9 '15

Faults of technical literature. R. Fleming. *Eng N* 74:548-9 S 16 '15

Writing technical articles. H. T. Owens. *Am Gas Light J* 102:1-2 Ja 4 '15

Technology

Philosophy and technics. G. Bugge. *Sci Am* 87:124 F 20 '15

See also Building; Chemistry, Technical; Classification; Electric engineering; Engineering; Industrial education; Machinery; Metallurgy; Photography; Railroad engineering; Technical education; also names of specific industries, trades, etc., e. g. Paper making, Printing

Teeth

Recognizing vocations from the teeth. *Il Sci Am* 87:300 My 8 '15

Telautograph

Facsimile telegraphy and phototelegraphy. *Sci Am* 112:571-4 Je 5 '15

Telegraph

Censorship of railway messages. W. W. Hall. *Ry Age* 58:1479 Je 25 '15

Census of telephone and telegraph systems.

Elec W 65:625-6 Mr 6 '15

Census report on telephones and telegraphs.

Elec R & W Elec'n 66:444-5 Mr 6 '15

Communicating over great distances; the invention of the telegraph, telephone and wireless telegraphy. *Il Sci Am* 112:531-2 Je 5 '15

Future progress of cable telegraphy; abstract.

H. W. Malcolm. *Elec W* 65:1685 Je 26 '15

Railway telegraph superintendents annual convention. *Ry Age* 59:19-20 J1 2 '15

Telegraph relays; abstract.

H. W. Malcolm. *diags Elec W* 65:403-4 F 13 '15

Year in the electrical industry. *Elec R & W Elec'n* 66:5-6 Ja 2 '15

See also Cables, Submarine; Electric wire and wiring; Military telegraph; Poles; Train dispatching; Wireless telegraph

Picture transmission**See Phototelegraphy****Telegraph, Military. See Military telegraph****Telegraph, Printing**

High speed and printing telegraphs. *Il Sci Am* 112:532 Je 5 '15

High-speed printing telegraph system. C. Kinsley. *Il Am Inst E E Pro* 33:1071-81 Je '14; Same cond. *Sci Am* S 80:84-5 Ag 7 '15;

Discussion. *Am Inst E E Pro* 33:1898-1905 D '14

New printing telegraph system developed for the Western union company using the type-writer-printing principle. P. M. Rainey. *Il diags Elec W* 65:848-57 Ap 3 '15

Printing telegraph. *Il Sci Am* S 80:252-3 O 16 '15

System of long distance typewriting; eight messages sent simultaneously over a single wire. *Il Sci Am* 112:428-4 My 8 '15

Western Union multiplex printing telegraph. D. Murray. *Elec W* 65:1384-5 My 22 '15

Telegraph, Submarine. See Cables, Submarine**Telegraph, Wireless. See Wireless telegraph****Telegraph poles. See Poles****Tele-meter, Stereoscopic. See Stereoscopic tele-meter****Telephone**

Audion telephone repeater. F. M. Williamson. *Elec W* 65:900 Ap 10 '15

Automatic switchboard telephone system of Los Angeles, Cal. W. L. Campbell. *Il Am Inst E E Pro* 34:1847-71 Ag '15

Automatic telephone system at the Kansas City terminal. *Il Ry R* 55:768-70 D 26 '14

Census of telephone and telegraph systems.

Elec W 65:625-6 Mr 6 '15

Census report on telephones and telegraphs.

Elec R & W Elec'n 66:444-5 Mr 6 '15

Chest telephone for aeroplane pilots. *Il Sci Am* 113:255 S 18 '15; *Elec R & W Elec'n* 67:211-12 J1 31 '15

Communicating over great distances; the invention of the telegraph, telephone and wireless telegraphy. *Il Sci Am* 112:532-4 Je 5 '15

Compact service board in Boston telephone building. *Il Elec W* 65:1251-2 My 15 '15

Cordless vestibule telephone. *Il Elec W* 66:421 Ag 21 '15

Development of the national telephone system. M. C. Rorty. *Am Soc M E J* 37:709-10 D '15

Electrical equipment for enabling the deaf to hear. *Il Elec W* 66:1221-2 N 27 '15

Explorations over the vibrating surfaces of telephonic diaphragms under simple impressed tones. A. E. Kennelly and H. O. Taylor. *Elec W* 66:463 Ag 28 '15

How Bell invented the telephone. T. A. Watson. *Am Inst E E Pro* 34:1503-13 Ag '15

Operating features of the audion: explanation of its action as an amplifier, as a detector of high-frequency oscillations and as a valve. E. H. Armstrong. *diags Elec W* 64:1149-52 D 12 '14

Railroad tracks as conductors for telephonic communication. *Il Sci Am* 113:363-4 O 23 '15

Recent telephone patents. *diag Elec W* 65:993, 1120 Ap 17, My 1 '15

Relative cost of manual and automatic telephony. *Elec R & W Elec'n* 66:300 F 13 '15

Telephone dispatching at San Antonio. *Il Elec Ry J* 46:92-3 J1 17 '15

Telephone—Continued

- Telephone dispatching in city service. E. E. Strong. *Il Elec Ry J* 45:385-7 My 8 '15
- Telephone dispatching on street-railway lines. *Il Elec R & W Elec'n* 65:1150-1 D 12 '14
- Telephone equipment for churches. *Il Elec R & W Elec'n* 67:488-9 S 11 '15; *Elec W* 66:711 S 25 '15
- Telephone switch. J. D. Lewis. *diags Elec R & W Elec'n* 66:549 Mr 20 '15
- Telephone that tells who called while you were out. *Il Elec W* 66:18 JI 8 '15
- Telephone train dispatching on the Cedar Rapids & Iowa City railway. *Il Elec Ry J* 44:1809 D 12 '14
- Telephone troubles in the tropics. W. L. Preece. *diags Inst E E J* 53:545-51 Ap 15 '15; Abstracts. *Elec R & W Elec'n* 66:738-9 Ap 17 '15; *Eng M* 49:424-5 Je '15; *Sci Am S* 79:355 Je 5 '15; Discussion. *Inst E E J* 53:551-65 Ap 15 '15
- Telephones for use in mine rescue work demonstrated at San Francisco. *Il Elec R & W Elec'n* 66:830 My 1 '15
- Telephony and telegraphy session of Am. Inst. E. E. *Elec R & W Elec'n* 67:570-2 S 25 '15
- Thermal telephone: abstract. M. de Lange. *Il Elec W* 65:98 Ja 9 '15
- Thermophone. *Sci Am* 113:37 JI 24 '15
- Toll telephone traffic: an experimental study of the relationship between circuit loads and delay to traffic. F. F. Fowle. *Am Inst E E Pro* 33:1063-70 Je '14; Discussion. 33:1896-7 D '14
- Year in the electrical industry. *Elec R & W Elec'n* 66:5-6 Ja 2 '15
- See also* Electric wire and wiring; Telephone lines; Wireless telephone

Extension systems

- Industrial plant to install extensive private telephone system. *Il Elec R & W Elec'n* 65:1192-3 D 19 '14
- Locating an executive in the factory. H. A. Russell. *plan Iron Age* 95:344-5 F 11 '15

Intercommunicating systems

- Couch autophone system. *Il Eng M* 49:sup3-4 S '15
- Intercommunicating telephone systems. T. L. Lee. *Elec R & W Elec'n* 66:859-61 My 8 '15

Rates

- Columbia, Mo., telephone company. *Elec R & W Elec'n* 66:955-6 My 22 '15
- New York telephone rate revision. *Eng N* 73:691, 697 Ap 8 '15

Telephone, Military. *See* Military telephone

Telephone association, National Independent. *See* National independent telephone association

Telephone booths

- Ventilation of telephone and movie booths. R. L. Douglass. *Dom Eng* 69:161-2 N 7 '14; Same; with discussion. *Am Soc Heat & V E* 20:330-6 '14

Telephone cables

- London-Birmingham-Liverpool telephone cable. *diags Engineer* 120:277 S 17 '15

Telephone companies

- American telephone annual report. *Elec W* 65:752-4 Mr 20 '15
- Annual report of the American telephone and telegraph company for the year ended December 31, 1914. *Elec R & W Elec'n* 66:532-3 Mr 20 '15
- Ettrick telephone company; rates to stockholders. *Elec R & W Elec'n* 67:68-7 JI 10 '15

National independent telephone association annual convention, Chicago, February 3 to 5. *Elec R & W Elec'n* 66:305-8 F 13 '15

Accounting

- Interstate commerce commission's uniform system of accounts for class C telephone companies—objections as set forth in the brief submitted by the Wisconsin railroad commission. *J Account* 19:398-401 My '15

Telephone in war. *See* Military telephone

Telephone lines

- Across the continent by telephone. *Il map Elec R & W Elec'n* 66:210-15 Ja 30 '15

Across the continent by telephone. *Il Sci Am* 112:129 F 6 '15; Same cond. *Eng M* 48:908-9 Mr '15

Aerial telephone-cable terminal. *Il Elec R & W Elec'n* 67:686 O 9 '15

High voltage arrester for telephone lines. E. P. Peck. *Il Gen Elec R* 18:189-94 Mr '15

Inauguration of transcontinental telephony. *diag map Elec W* 65:279-80 Ja 30 '15

Protecting linemen when using telephone circuits paralleling transmission lines. *Il Elec W* 66:812 O 9 '15

Pupin coils for telephone lines; abstract. F. Breisig. *Elec W* 66:800 S 11 '15

Submarine cable rapid telegraphy; ocean and intercontinental telephony. B. Gatl. *Il diags Am Inst E E Pro* 34:2101-29 S '15

Trigonometric expressions for the phenomena occurring in long transmission lines. V. Karapetoff. *Elec W* 66:914-15 O 23 '15

See also Telephone cables

Telephone poles. *See* Poles

Telephone receiver connected to calipers. A. J. Carr. *diags Power* 41:621 My 4 '15

Telephotography

Air transparency for infra-red rays: application of these rays to telephotography. G. Michaud and J. F. Tristan. *Il Sci Am* 111:521 D 26 '14

See also Phototelegraphy

Telescope sights

Telescope sights for fighting rifles. E. C. Crossman. *Il Sci Am* 113:118-19 Ag 7 '15

Telescopes

Measurement of distances in war. A. Keller. *Il diags Sci Am S* 79:324-5 My 22 '15

Power of telescopes. W. E. Woolard. *Sci Am S* 80:46 JI 17 '15

See also Periscope

Telpherage

Electrical appliances for workshops. *Il diag Engineer* 120:40-1 JI 9 '15

Telpher furnace charging. N. Kapp. *diags Iron Age* 94:1388-9 D 17 '14

Telphers expedite coal movement at German plant. A. Gradenwitz. *Il Eng Rec* 71:615 My 15 '15

See also Cableways; Conveying machinery

Temperament

Antecedents of the study of character and temperament. J. Jastrow. *Sci Am S* 80:191-2 S 18 '15

Modern psychology; the present study of character and temperament. J. Jastrow. *Sci Am S* 80:306-7 N 13 '15

Temperance

Intoxication, a cause of accidents. T. D. West. *Il Iron Tr R* 56:713-16 Ap 8 '15; Same. *Foundry* 43:267-70 JI '15

Temperature

Effect of moisture in the earth on temperature of underground cables. L. E. Imlay. *diags Am Inst E E Pro* 34:263-70 F '15; Discussion. 34:2615-19 N '15

See also Boiling points; Earth temperature; Freezing points; Melting points

Measurement

Conversion scale for centigrade and fahrenheit temperatures. H. P. Tiemann. *Am Inst Min E Bul* 103:1247-8 Je '15; Same. *Iron Age* 96:31 JI 1 '15; Discussion. *Am Inst Min E Bul* 103:2512-13 D '15

Course in high temperature measurements at Purdue university. H. S. Ferry. *Il Met & Chem Eng* 13:454-6 JI '15

Determination of critical points in iron, steel and alloys. *Il diags Met & Chem Eng* 13:643-4 S 15 '15

Limits of experimental investigation. *Sci Am S* 80:33 Ag 7 '15

Measurement of rapidly changing temperatures; abstract. A. Petersen. *Met & Chem Eng* 13:189 Mr '15

Measuring atmospheric comfort. *Il Sci Am* 112:481 My 8 '15

Potentiometers for thermoelectric measurements especially in calorimetry. W. P. White. *diags Am Chem Soc J* 36:1868-85 S '14

Temperature—Measurement—Continued

Temperature changes in mass concrete found to be relatively small. Eng Rec 71:710 Je 5 '15

Temperature measurements in concrete buildings. Concrete Cem 8:155-7 Mr '15

Temperature of the mercury arc. J. C. McLennan. Sci Am S 79:107 F 13 '15

Thermoelement installations, especially for calorimetry. W. P. White. diags Am Chem Soc J 36:1856-68 S '14

See also Freezing points; Pyrometers and pyrometry; Thermometers; Thermophones; Thermopiles

Temperature, Atmospheric. See Atmospheric temperature

Temperature, High

Classification of high-temperature physical problems. E. F. Northrup. Met & Chem Eng 13:147-50 Mr '15

Course in high temperature measurements at Purdue university. E. S. Ferry. II Met & Chem Eng 13:454-5 Jl '15

Estimation of high temperatures by the method of color identity. Met & Chem Eng 13:444 Jl '15

High temperature investigation and a study of metallic conduction. E. F. Northrup. J Fr Inst 179:821-62 Je '15; Abstract. Elec W 65:1514-15 Je 19 '15

Producing the effective temperature of the sun. Sci Am 112:323+ Ap 3 '15

Properties of metals at higher temperatures; abstract. P. Ludwik. Am Soc M E J 37:604-5 O '15

Temperature, Low

Absolute zero. S. Dushman. diags Gen Elec R 18:93-100, 238-48 F, Ap '15

Behavior of enzymes at low temperatures. J. S. Hepburn. J Fr Inst 179:581-5 My '15

Electrical resistance as affected by very low temperatures. Sibley J 29:106-7 Ja '15; Same. Sci Am S 79:82 F 6 '15

Kammerlingh Onnes, the Dutch specialist in cold. por Sci Am 112:151+ F 13 '15

Thermometry of low temperatures. Sci Am 113:265 S 25 '15

Temperature recorders

Multiple-type recording instrument for pyrometers. II Met & Chem Eng 13:643 S 15 '15

Recording instruments, for heat-treating. II Automobile 32:460-1 Mr 11 '15

Tapalog, a new multiple record pyrometer recorder. II Met & Chem Eng 13:260-1 Ap '15; Iron Age 95:809 Mr 18 '15; Elec W 65:371 Ap 3 '15; Power 41:541 Ap 20 '15

Temperature regulators. See Thermostats

Temples

Mysterious Baalbek. Mrs. T: E. LePage. II Sci Am S 73:407-10 D 26 '14

Templets

Cardboard templets for laying out structural work. Eng N 74:461-2 S 2 '15

Rail templet for use in valuation inventory. F. V. Purcell. diag Ry Age 58:960 N 19 '15

Templet for curve-worn rail. diag Ry Age 59:970 N 19 '15

Tenants. See Landlord and tenant

Tenders, Locomotive. See Locomotive tenders

Tenders, Naval

Auxiliary naval vessels; classification of naval vessels description of the destroyer tender Melville. II Int Marine Eng 20:295-7 Jl '15

Tenement houses

Sanitary engineer's views on housing. T: J. Claffy. II Dom Eng 73:45-6 O 9 '15

See also Housing problem

Tennessee

See also Geology—Tennessee

Tennessee master plumbers' association

15th annual convention, Nashville, March 22. Dom Eng 70:413-14 Mr 27 '15

Tennis

Science as an aid to practical tennis. D. Douglass. Sci Am 113:480+ N 13 '15

Tennis as compared to golf. D. Douglass. Sci Am 113:383 O 30 '15

Throwing vs. batting a tennis ball. D. Douglass. II Sci Am 113:254 S 18 '15

Terblum

Chemical research on terblum. C. James and D. W. Biessel. Am Chem Soc J 36:2060-6 O '14

Terminal companies

Federal valuation of joint facilities. R: J. McCarty. Ry Age 58:699 Mr 26 '15

Terminals

Cotton warehouse and terminal at New Orleans. diag Eng N 73:1217 Je 24 '15

Design and construction features of the Ocean steamship co.'s terminal at Savannah, Ga. II plans Eng & Contr 44:343-4 N 3 '15

Export coal terminal of the Southern railway at Charleston, S. C. II Ry R 57:820-1 N 13 '15

Handling of freight in terminals. R. H. Rogers. Am Inst E E Pro 34:8048-52 D '15

Hunt's Point terminal in New York involves difficult bulkhead construction. II diags map Eng Rec 73:104-6 Jl 24 '15

Marine terminal machinery. H. Sawyer. Int Marine Eng 20:109-11 Mr '15

New deep water pier at Halifax, Nova Scotia. A. F. Dyer. II Concrete Cem 7:7-13 Jl '15; Same cond. Eng N 73:1204-10 Je 24 '15

New marine terminals at Beaumont, Texas; abstracts. H. M. Harding. II plan Eng N 73:1072-3 Je 3 '15; Eng & Contr 43:sup28 My 19 '15; Eng Rec 71:721 Je 5 '15; Int Marine Eng 20:299-300 Jl '15; Ry R 57:679-81 N 27 '15

New York freight terminals, 1914. Ry Age 59:395-7 Ag 27 '15

Newark is rapidly creating its own water terminal in New Jersey meadows. II diags plan Eng Rec 73:201-3 Ag 14 '15

Novel bulkhead for wharves at Jacksonville. H. D. Mendenhall. diags map Eng N 74:772-4 O 21 '15

Points of attack in the terminal problem. J. A. Jackson. II Int Marine Eng 20:111-13 Mr '15

Possibilities open to the central station in solving the freight terminal problem. J. A. Jackson. Gen Elec R 18:1142-4 D '15

River terminal at East St. Louis, Ill. diags Eng N 74:543 S 16 '15

Santa Fe to solve Chicago fruit terminal problem. plan Eng Rec 71:819-20 Je 26 '15

Steamship terminal in the Bronx. II diag maps Sci Am 112:30-1 Ja 23 '15

Terminals the need of inland water transportation; New Orleans report. Eng Rec 72:565-6 N 6 '15

Transfer facilities at marine terminals. H. M. Harding. II Int Marine Eng 20:98-102 Mr '15

Water terminals on the Mississippi river. Eng N 73:507 Mr 11 '15

See also Docks; Freight handling; Locomotive terminals; Ports; Railroads—Terminals; Street railroads—Terminals

Terminals, Railroad. See Railroads—Terminals

Terminology. See Electric wire and wiring—Terminology; Road materials—Terminology; Science—Terminology

Ternary mixtures

Partial vapor pressures of ternary mixtures of toluene, carbon tetrachloride and ethylene bromide. M. A. Rosanoff, J. F. W. Schulze, and R. A. Dunphy. Am Chem Soc J 36:2480-95 D '14

Terra cotta

Suggestions for laying terra cotta. Bldg Age 37:33 F '15

Terraces

Mapping terraces at the Zoo. R. N. Stroyer. II diags Engineer 119:156-7 F 13 '15

Tesla, Nikola, 1857-

Nikola Tesla's fountain. II Sci Am 112:162 F 13 '15

Personal recollections. por Sci Am 112:537+ Je 5 '15

Test roads. See Roads, Experimental

Testing

American society for testing materials annual meeting, June 22-28; abstracts of papers and discussions. Eng N 74:36-41, 67-9 Jl 1-8 '15

American society for testing materials 18th annual meeting. Power 42:33-6 Jl 6 '15

Fixing the elastic limit standard. T. D. Lynch. II Iron Tr R 57:79-81+ Jl 8 '15

Testing—Continued

Notch shock tests and the law of similarity; abstract. R. Striebeck. *diag Am Soc M E J* 37:183-4 Mr '15

Pennsylvania railroad test department. C. D. Young. *il plan Ry Age (Mach ed)* 89:332-7 Jl '15; Same. *Ry Age* 89:6-11 Jl 3 '15; Same. *Ry R* 57:2-5, 42-6, 117-18 Jl 3-10, 24 '15

See also Electric testing; Freezing tests; Laboratories; Strength of materials; Testing machines; also subject tested, e. g. Boilers—Testing, Cement testing, Coal testing, Concrete—Testing, Gas and oil engines—Testing, Gas testing, Steam engines—Testing, Steel—Testing; also American society for testing materials

Testing, Electric. *See* Electric testing

Testing machines

British Portland cement making machinery. *il diag Engineer* 120:173-6 Ag 20 '15

Cause of brittleness in soft steel: German tests on a Krupp shock-testing machine. *Iron Age* 94:1322-3 D 8 '14

Charpy impact test on treated steels. J. J. Thomas. *il Iron Age* 96:138-40 Jl 15 '15

Colburn twist drill testing machine. *il Mach* 22:251-2 N '15

Cylinder friction and lubrication testing apparatus. A. Flowers. *diag Power* 42:208-10 Ag 10 '15

Dynamic properties of cast steel. J. L. Uhler. *il Iron Tr R* 57:630-2 S 30 '15; Same. *Iron Age* 96:754-6 S 30 '15; Same. *Foundry* 43:417-19 O '15

Field testing machine used on Welland ship canal. *il diag Eng Rec* 72:112 Jl 24 '15

Fifty-ton testing machine built in college shop. C. C. Myers. *il diag Eng N* 74:1050-1 N 25 '15

Flotation testing machine. R. W. Smith. *diags Eng & Min J* 100:395-6 S 4 '15

Hydraulic hardness testing machine. *il Met & Chem Eng* 13:648 S 15 '15

Hydraulic testing machine. *il Iron Tr R* 56:619 Mr 11 '15

Kick vs. Rittinger: an experimental investigation in rock crushing, performed at Purdue university. A. O. Gates. *il diags Am Inst Min E Bul* 105:2023-51 S '15

Laps and lapping. W. A. Knight and A. A. Case. *diags Am Soc M E J* 37:451-6 Ag '15; Same cond. *Iron Tr R* 57:24-6 Jl 1 '15; Discussion. *Am Soc M E J* 37:456-8 Ag '15

Motor driven Universal tester for fabrics. *il Textile World* 50:123 O '15

New rope-testing machine. *il diag Eng N* 74:172-3 Jl 23 '15

Pneumatic drop machine for the foundry. G. S. Evans. *il Iron Age* 96:574-5 S 23 '15

Results obtained with ground hobs. E. K. Hammond. *il diag Mach* 21:695-700 My '15

Smoothness-testing machine for pavements. *il Eng N* 74:751-2 O 14 '15

Testing surveyors' tapes by the Canadian government. J. A. Macdonald. *il Eng N* 74:414-15 Ag 26 '15

Testing the consistency of asphalt. *il Sci Am* 113:286-7 S 11 '15

Testing the hardness of iron castings. G. S. Evans. *il diag Iron Age* 96:8-10 Jl 1 '15

Tool for hardness tests developed by L. Loewe & co. H. Friedmann. *il Iron Tr R* 57:899 N 4 '15

Universal strainometer of simple design. S. H. Graf. *il Iron Age* 96:134-5 Jl 15 '15

Von Kapp's oil testing machine; abstract. *Am Soc M E J* 37:413-13 Jl '15

Walker wedge testing machine. *il Iron Tr R* 57:438 S 2 '15

Watch drop testing apparatus. *il Sci Am* 111:494 D 12 '14

Tetanus

Tetanus serum for the French army. *Sci Am* S 80:5 Jl 3 '15

Vaccine virus not the cause of tetanus. *Sci Am* S 80:155 S 4 '15

Texas

See also Roads—Texas

Industries and resources

Investigation of sources of potash in Texas. W. B. Phillips. *il Am Inst Min E Bul* 98:115-27 F '15

Petroleum in Texas and Louisiana. A. J. Hazlett. *Eng & Min J* 99:137-9 Ja 16 '15

Textile association, Southern. *See* Southern textile association

Textile design

Designs for a basket weave. *il Textile World* 49:537 Ag '15

Hand book of weaves. G. H. Oelsner. *il Textile World* 46:408-11, 503-6, 586-9; 47:37-9, 280-2, 317-9, 408-12, 504-7, 594-9; 48:122-7, 208-12, 316-21, 400-3, 496-501, 589-93; 49:87-91, 168-7, 337-42 Ja '14-Je '15

See also Design, Decorative

Textile fibers

Fibers not generally known. R. Dantzer. *Textile World* 48:404-5 Ja '15

Germans find substitute for jute and hemp. H. G. Seitzer. *Textile World* 49:842 S '15

Preparing flax or hemp for spinning. *Textile World* 49:127-8 Ap '15

See also Cotton; Flax; Hemp; Silk; Wool

Textile finishing

Manufacture of elastic fabrics. S. Brown. *il diags Textile World* 48:294-7 Ja '15

Prein finishing process for textiles. *Textile World* 48:426 Ja '15

Process for treating open-mesh fabrics. *Textile World* 49:641-2 S '15

Process for treating yarn and twine. *diag Textile World* 49:460-1 Jl '15

See also Wool finishing

Textile industry and fabrics

British India: textile manufactures. U S Sp Cons Rep 72:235-58 '15

Contributions of the chemist to the textile industry. F. W. Hobbs. *J Ind & Eng Chem* 7:280-1 Ap '15

European textile industry. *Textile World* 49:405-3 Jl '15

French army contracts modified for the benefit of Americans. *Textile World* 49:321-2 Je '15

Measuring of textile fabrics. E. H. Marble. *Textile World* 49:35-7 Ap '15

Our textile industries and Europe's calamity. A. H. Gulliver. *Textile World* 49:223-4 My '15

Secretary Redfield and the textile industry. *Textile World* 48:286a-286c D '14

Situation in Germany. *Textile World* 48:564-7 Mr '15

Tariff and the ultimate consumer. H. C. Emery. *Textile World* 50:179-83 N '15

Textile industries of Great Britain and Germany. J. A. Hunter. *Textile World* 48:597-600; 49:328-31 Mr, Je '15

Textile trade in Germany. *Textile World* 48:376-8 Ja '15

War and our chemical industries. W. D. Livermore. *J Ind & Eng Chem* 7:61 Ja '15

Woven fabric for fire hose. *il Textile World* 49:425-6 Jl '15

See also Bleaching; Cotton; Cotton fabrics; Drying apparatus (for textile fabrics); Dyes and dyeing; Elastic fabrics; Pulling; Gas mantles; Haircloth; Hosiery; Knit goods; Lace; Shoe cloth; Silk; Spinning; Textile design; Textile fibers; Textile finishing; Textile machinery; Textile mills; Textile printing; Underwear; Weaving; Wool; Woolen and worsted manufacture; Worsted; Yarn

Cloth inspection

Inspection of white cloth. *Textile World* 49:98-9 Ap '15

Cloth testing

Testing cloth for its wearing qualities. *Textile World* 49:860-1 S '15

Testing the resistance to wear of cloth. *Textile World* 48:480-1 Ja '15

Exhibitions

Southern textile exposition, Greenville, S. C., Nov. 2-6; with list of exhibitors. *Textile World* 50:65-6, 166-76 O-N '15

Law

Pure fabric legislation. K. B. Lamb. *Textile World* 50:152-3 N '15

Textile industry and fabrics—Law—Continued
 Pure fabrics. H. B. Cheney. *Textile World* 50:192-5 N '15
 Smith pure textile bill. *Textile World* 49:63-4 Ap '15
 Studying the textile labeling bills. *Textile World* 48:371 Ja '15

Tables, calculations, etc.

Straight line textile calculations. S: S. Dale. *Textile World* 49:427-33, 514-18, 650-6; 50:89-94, 204-10 JI-N '15
 Textile analysis and fabric value determination for cotton back satin. W: J. Schepp. *Textile World* 50:78-9 O '15

Testing

Quick method for testing the non-staining quality of textile oils. T: T. Gray. *Textile World* 49:568-9 Ag '15
 Testing and properties of textile materials. *Textile World* 49:568-9 Ag '15
 Testing U S Bur Stand Circ 41:1-26 '15
 Testing textile materials. *Textile World* 48:556-7 Mr '15
 Tests for tire fabrics. *Textile World* 49:562-4 Ag '15

Textile law. See **Textile industry and fabrics—Law**

Textile machinery

Automatic cloth feed for tentering machines. *Textile World* 49:374-5 Je '15
 Cameron principle of cutting fabrics. *Textile World* 49:605-8 S '15
 Cameron process for slitting and winding strips for surgeons' bandages and other purposes. *Textile World* 48:346-50 D '14
 Cloth shearing machine. *Textile World* 50:117-18 O '15
 Device for laying cloth. *Textile World* 49:113 Ap '15
 Finishing of belting fabrics. *Textile World* 49:684-5 S '15
 Fulling and washing mill for knit goods. *Textile World* 50:134-5 O '15
 Haubold improved press for underwear and hosiery. *Textile World* 49:451-2 JI '15
 Improved high pressure boiling jigger. *Textile World* 48:427-3 Ja '15
 Machine for finishing fabrics. *Textile World* 49:463-5 JI '15
 Machines for preparing absorbent cotton. *Textile World* 48:350-1 D '14
 New flat seaming machine for knitted goods. *Textile World* 48:513-15 F '15
 New Lancashire cloth winder. *Textile World* 48:439-42 Ja '15
 Steaming and drying machine for textiles. *Textile World* 49:116-17 Ap '15
See also Carding machinery; Cotton machinery; Dyeing machines; Knitting machinery; Looms; Silk machinery; Spinning and shrinking machine; Spoolers

Textile mills

Electric power in the textile industry. C. A. Chase. *Gen Elec R* 18:540-50 Je '15
 Electricity in textile mills. *Gen Elec R & W Elec'n* 67:780-91 O 30 '15
 Northern man in the South. *Textile World* 49:73-4, 113-15 Ap, Je '15
 Passementerie mill. *Textile World* 48:445-7 Ja '15
 Problem of mill lighting. *Textile World* 50:81-5 O '15
 Report of mill construction for 1914. *Textile World* 48:287-301 D '14
 Static electricity in a textile mill. W: T. Estlick. *Gen Elec R & W Elec'n* 67:231 Ag 7 '15
See also Cotton mills; Knitting mills; Looms

Textile printing

Printing process for wool goods. *Textile World* 48:385-6 Ja '15

Textile schools

Are the textile schools doing all that should be expected of them? A. N. Sheldon. *Textile World* 49:624-6 S '15
 List of the textile schools in the United States. *Textile World* 49:535 Ag '15

Textile testing. See **Textile industry and fabrics—Testing**

Thallium

Vapor pressure of thallium amalgams. J. H. Hildebrand and E. D. Eastman. *Am Chem Soc J* 37:2452-9 N '15

Thaumasite

Thaumasite a decomposition of anhydrite. *Sci Am* 111:609 D 19 '14

Thawing

Electric thawing. *Elec R & W Elec'n* 66:590-1 Mr 27 '15
 Hydrant-thawing apparatus. *Eng* 49:117-18 S '15
 Pipe thawing. A. C. Kelm. *Elec W* 65:644-5 Mr 13 '15
 Pipe-thawing motor truck of the Columbus water-works. *Eng* N 73:30 Ja 7 '15
 Thawing ground for trenching at Kalamazoo. A. Lenderink. *Eng N* 73:351-2 F 13 '15
 Thawing methods at Fairbanks. H. I. Ellis. *Eng* N 73:351-2 F 13 '15
 Thayer, Benjamin Bowditch, 1862- Sketch. *por Eng M* 50:208-9 N '15

Theaters

American theater; its antecedents and characteristics. H. Tallant. *diag Brickb* 23:285-90; 24:17-22 D '14-Ja '15

Keeney theatre, Brooklyn, N. Y.; views. *Arch & Bldg* 47:140-2 Ap '15

Steel construction for the Schenley theater, Pittsburgh. C. N. Haggart. *diag Eng N* 73:658-9 Ap 8 '15

Theatre, from a fire prevention standpoint. E: R. Hardy. *Arch & Bldg* 46:435-6 N '14

See also Moving picture theaters

Designs and plans

Neighborhood playhouse, Grand street, New York, N. Y. *Brickb* 24: pl 58-60 Ap '15

Toy theatre, Dartmouth street, Boston. *Brickb* 24:pl 56-7 Ap '15

Heating and ventilation

Theater cooling, ventilation and heating. *II plans Metal Work* 33:225-7 F 5 '15

Lighting

Lighting of the Finsbury Park Empire. *II Illum Engr* 8:327 JI '15

Mobile color and stage lighting. B. Jones. *II plan Elec W* 60:245-9, 294-7, 346-9, 407-9, 454-6 JI 31-Ag 28 '15

Therapeutics

Therapeutic uses of preparations of the ductless glands. H. G. Torrey. *Sci Am S* 80:122-3, 134-5 Ag 21-23 '15

See also Anesthetics; First aid in illness and injury; Phototherapy; Radiotherapy

Thermal efficiency of the electric furnace. W. M. Johnson. *Eng Soc W Pa* 31:488-98; Discussion. 31:499-509 JI '15

Thermophone

New telephone. *Sci Am* 113:87 JI 24 '15

Thermite welding. See Welding

Thermochemistry

Entropy of vaporization as a means of distinguishing normal liquids. J. H. Hildebrand. *Am Chem Soc J* 37:970-8 My '15

Heat of formation of solid solutions. H. W. Foote and B. Saxton. *Am Chem Soc J* 36:1704-8 Ag '14

Heat of neutralization of hydroxylamine and tetramethylammonium hydroxide. E. O. Ellington. *Am Chem Soc J* 37:699-709 Ap '15

Heat of vaporization of normal liquids. J. Kendall. *diag Am Chem Soc J* 36:1820-30 Ag '14

Heats of combustion of aromatic hydrocarbons and hexamethylene. T. W. Richards and F. Barry. *II Am Chem Soc J* 37:998-1020 My '15

Mixed crystals of ammonium chloride with manganese chloride. H. W. Foote and B. Saxton. *Am Chem Soc J* 36:1695-1704 Ag '14

See also Boiling points; Combustion; Dissociation; Melting points; Specific heat; Temperature, High; Temperature, Low; Vapor density

Thermo-couples

Neglected phenomena in steel treatment. M. E. Leeds. *diag Iron Age* 96:80-2 JI 8 '15

Thermo-couples—Continued

Pyrometers for shop use. J. M. Johnson. *diags* Mach 21:550-3 Mr '15; Same. Sci Am S 80: 156-8 S 4 '15

See also Thermopiles

Thermodynamics

Determination of pressure variation in steam turbines and of dimensions of nozzles by means of the JS diagram; abstract. Schmoltke. Am Soc M E J 37:411-13 JI '15

Distribution of heat in the cylinder of a gas engine. A. H. Gibson and W. J. Walker. *diags* Engineer 119:550-1 Je 4 '15; Same cond. Power 41:824-5 Je 15 '15; Abstract. Am Soc M E J 37:417-18 JI '15

Earth considered as a heat engine. G. F. Becker. Sci Am S 79:391 Je 19 '15

Efficiency of heat engines. R. L. Wales. Power 42:17-18 JI 6 '15

Free energy of some carbon compounds. G. N. Lewis and M. Randall. Am Chem Soc J 37: 458-70 Mr '15

Heat-engine cycles. Power 41:173-5 F 2 '15

Is the organism a thermodynamic mechanism. J. Johnstone. Sci Am S 80:82-3, 106-7 Ag 7-14 '15

Properties of silver iodide interpreted in relation to recent thermodynamic conceptions. G. Jones and M. L. Hartmann. *diag* Am Chem Soc J 37:752-75 Ap '15

Steam-engine cycles. Power 41:210-11 F 9 '15

Theoretical efficiency of heat engines. F. G. Gasche. Power 41:753-4 Je 1 '15

Theoretical efficiency of heat engines. R. C. H. Heck. Power 41:534-6; 42:131 Ap 20, JI 27 '15

Thermal principles of the blast furnace. J. E. Johnson, Jr. Met & Chem Eng 13:718-20, 787-92, 833-40 O 15-N 15 '15

Thermodynamic paradox; abstract. A. F. Engel. Am Soc M E J 37:652 N '15

Thermodynamics of the marine oil engine. J. F. Wentworth. Power 41:145-8 Ja 26 '15

See also Heat engines; Steam; Steam engines

Thermoelectricity

Thermoelectric properties of carbon. W. C. Moore. Am Chem Soc J 37:2032-7 S '15

Thermoelement. See Thermopiles**Thermometers and thermometry**

Brief history of the thermometer. W. S. Atchison. Power 41:575 Ap 27 '15

Emergent stem correction for thermometers in creosote oil distillation flasks. R. M. Wilhelm. *diags* U S Bur Stand Tech Pa 49:1-21 '15

Freezing point of benzene as a fixed point in thermometry. T. W. Richards and J. W. Shipley. Am Chem Soc J 36:1825-32 S '14

Measurements for the household. U S Bur Stand Circ 55:38-50 '15

New thermochemical method for subdividing accurately a given interval on the thermometer scale. T. W. Richards and T. Thorvaldson. Am Chem Soc J 37:81-6 Ja '15

Notes on thermometers. S. S. Rathbun. *diags* Power 42:509-10 O 12 '15

Thermometry of low temperatures. Sci Am 113: 265 S 25 '15

Wheatstone bridge for resistance thermometry. C. W. Waldner and others. *diags* U S Bur Stand Bul 11:571-90 My 27 '15

See also Calorimeters and calorimetry; Katathermometers; Pyrometers and pyrometry

Thermophones

Thermophones in Kensico dam. W. F. Smith. *diags* Engng N 72:1172 D 10 '14

Thermopiles

Difficulty of measuring heat, with special reference to radiated and convected heat. A. H. Barker and F. C. S. Brendal. Heat & Ven 12: 38-4 Je '15

Thermoelement installations, especially for calorimetry. W. P. White. *diags* Am Chem Soc J 36:1856-68 S '14

Thermoelements of precision, especially for calorimetry. W. P. White. *diags* Am Chem Soc J 36:2292-318 N '14

Various modifications of thermopiles having a continuous absorbing surface. W. W. Coblenz, pls U S Bur Stand Bul 11:131-87 N 15 '14; Abstract. Elec W 64:1163-4 D 12 '14

See also Thermo-couples

Thermoregulators. See Thermostats**Thermos bottles**

Continuous drop irrigation from a thermos bottle. *diag* Sci Am S 80:77 JI 31 '15

Thermostats

Alternating current thermoregulator. H. S. Davis. *diag* Am Chem Soc J 37:1520-1 Je '15

Lecture course on elements of heating. C. A. Fuller. *diags* Metal Work 84:212-13, 303-4 Ag 13, S 3 '15

Substitute for the twin-bulb trap in toluene-mercury thermoregulators. P. B. Davis. *diag* Am Chem Soc J 37:1198-9 My '15

Test of economy and efficiency of automatic temperature regulation. M. S. Cooley. Heat & Ven 12:46 My '15

Test of economy and efficiency of automatic temperature regulation in office buildings. F. A. Boos. *diags* Heat & Ven 12:54-9 Ap '15

Thickeners. See Dorr thickener

Thinking machines

Machine that remembers and forgets. W. H. Dearden. *diags* Sci Am 112:246 Mr 13 '15

Thinking machine, planning and theories. S. E. Russell. *diags* Sci Am 113:246+ S 18 '15

Thiocyanates

Researches on hydantions; the interaction of hippuric acid with thiocyanates. T. B. Johnson, A. J. Hill and B. H. Bailey. Am Chem Soc J 37:2406-16 O '15

Thionyl chloride

Action of thionyl chloride on sulfides. H. B. North and C. B. Conover. Am Chem Soc J 37:2486-90 N '15

Third rails

Attaching signal wires to third-rail. G. H. McKelway. *diags* Elec Ry J 45:1038 My 29 '15

Contact conductors and collectors for electric railways. C. J. Hixson. *diags* Am Inst E E Pro 34:1477-90 Ag '15

Contact rail installation in England. *diags* Elec Ry J 45:154-6 JI 24 '15

Discussion of contact systems for electric railroads. (See Proceedings for June and August, 1915) Am Inst E E Pro 34:3068-77 D '15

First 2400-volt third-rail line is built. *diags* Eng Rec 72:40-1 JI 10 '15

High-voltage third-rail construction. A. H. Tracy. *diags* Elec Ry J 45:469-70 Mr 6 '15

Michigan railway's 2400-volt, third-rail line. *diags* map Elec Ry J 45:1144-9 Je 19 '15; Abstract. Engng M 49:753 Ag '15

New heavy electric railroad opened in Michigan. *diags* Engng N 74:212-13 JI 29 '15

New patented third-rail insulator. *diags* Elec R & W Elec'n 66:1214 Je 26 '15

Protecting third rail. *diag* Elec R & W Elec'n 67:370-1 Ag 28 '15

Third rail and trolley system of the West Jersey and seashore railroad. J. V. B. Duer. *diags* Am Inst E E Pro 34:1237-53 Je '15; Abstract. Elec Ry J 45:58-9 JI 10 '15

Top contact unprotected conductor rail for 600 volt traction systems. C. H. Jones. *diags* Am Inst E E Pro 34:1283-93 Je '15; Abstract. Elec Ry J 45:55-6 JI 10 '15

Thomson, Elihu, 1858-

Elihu Thomson, father of electrical welding. *por* Mach 21:444-5 F '15

Seventy years of inventions. Sci Am 112:518-19 Je 5 '15

Thomson bridge

Adjustments of the Thomson bridge in the measurement of very low resistances. F. Wenner and E. Weibel. U S Bur Stand Bul 11:65-8 N 15 '14

Thorla

Chemistry of the incandescent gas mantle. H. S. Miner. Met & Chem Eng 13:50-2 Ja '15; Same. Am Gas Light J 102:85-6 F 1 '15; Same. Sci Am S 79:139 F 27 '15

Thorium

Monazite, thorium, and mesothorium. K. L. Kithil. *bibliog* flow sheet U S Bur Mines Tech Pa 110:1-30 '15

horium—Continued

Thorium; an American industry—no danger of a shortage. T. Owens. *Am Gas Light J* 103: 187-8 S 20 '15

horium oxalate

Thorium ammonium oxalate. C. James, C. F. Whittemore and H. C. Holden. *Am Chem Soc J* 36:1853-8 S '14

hread cutting machines

National-Acme stud and bolt threading machines. *Il Mach* 22:238-41 N '15; *Iron Age* 96: 976-8 O 28 '15

Thomson thread milling machines for shells and rifle barrels. *Il diag Mach* 22:237-8 N '15
See also Pipe threading machines

hread guide

Improved thread guide. *Il Textile World* 49: 331-2 Je '15

hreadling machines. *See* Thread cutting machines

hree-legged stiff frame with hinged column bases; with discussion. N. M. Stineman. *W. Soc E J* 19:381-92 N '14

hroop college of technology

College of technology in the far West. *Sci Am* 113:90 J1 31 '15

hunderstorms

Facts about thunderstorms. *Sci Am S* 80:37-8 J1 17 '15

Thunder; theories and experiments conducted in an endeavor to solve the problem. W. Schmidt. *Sci Am S* 79:175 Mr 13 '15

hurston, Robert Henry, 1889-1903

Sketch. R. C. Carpenter. *por Sibley J* 29:323-30 Je '15

hury system. *See* Electric transmission

hyroid gland

Therapeutic uses of preparations of the ductless glands. R. G. Torrey. *Sci Am S* 80:122-3 Ag 21 '15

ibet**Commerce**

British India. *U S Sp Cons Rep* 72:561-72 '15

icket offices. *See* Railroads—Ticket offices

ickets

Suggestions for cards and tickets. *Inland Ptr* 64:800a-800h Mr '15

ides

Tide analysis—a simple and inexpensive apparatus. E. W. Brown. *Sci Am S* 79:347 My 29 '15

ie plates. *See* Railroad tie plates

ie-rods

Tie-rods for floor arches. E. Godfrey. *Eng N* 73:692 Ap 8 '15

Tie-rods for floor arches; a criticism of current practice. F. N. Kneass. *diags Eng N* 73: 518-19 Mr 13 '15

Tie-rods in tile-arch floors. G. Aus. *Eng N* 73:743 Ap 15 '15

ies, Railroad. *See* Railroad ties

ies, Steel. *See* Railroad ties, Steel

lie, Concrete. *See* Concrete tile

lie, Hollow. *See* Hollow tile

lies

Craft of tile-making and its relation to architecture. J. H. D. Allen. *Il Am Inst Arch J* 3:5-11 Ja '15

Decorative value of tile flooring. *Bldg Age* 37: 33-4 My '15

Ornamental tile in cornice work. *Il Bldg Age* 37:39-41 Je '15

See also Drain tile

lmer

Aeronautical timber; abstract. J. E. Huson. *Am Soc M E J* 37:712 D '15

Dry rot in factory timbers. F. J. Hoxie. *Eng Rec* 71:386-7 Mr 13 '15

Forest service proposes grading rule for southern yellow pine. *Eng Rec* 72:55-6 J1 10 '15

Longleaf pine distinguished visually from loblolly or shortleaf. A. Koehler. *Il Eng Rec* 72: 319-20 S 11 '15

Prevention of dry rot in mill buildings. F. J. Hoxie. *Il Eng Rec* 71:400-1 Mr 27 '15

Protecting wooden buildings from dry rot. *Eng N* 73:498 Mr 11 '15

Specifications for yellow-pine bridge and trestle timbers. *Ry Age* 59:67-8 J1 9 '15

See also Forests and forestry; Lumber; Mine timber; Pine; Redwood; Trees; Wood; Woodlots

Timber preservation. *See* Wood preservation

Timber testing. *See* Wood—Testing

Timbered houses

Old timbered houses: examples of old post and plaster work of the 15th and the 16th centuries which is seen at its best in England. *Il Bldg Age* 37:65-6 Ag '15

Timbering

Excavating and timbering the very deep trenches required in reservoir and other dam construction. J. M. M. Greig. *plans Eng & Contr* 44:176-8 S 8 '15

Lap-bolted crossbracing in wide and deep cut. *Il diag Eng N* 74:602 S 23 '15

See also Mine timbering; Subway timbering

Timbering, Mine. *See* Mine timbering

Timbering, Subway. *See* Subway timbering

Time

Time system of the United States. C. T. Higginbotham. *Sci Am S* 79:375 Je 12 '15

Time, Geological. *See* Geological time

Time keeping

Courtesy in timekeeping. N. Hutchings. *Iron Age* 96:581 S 9 '15

Efficiency system for road contractors. J. H. Hammond. *Eng & Contr* 43:552-4 Je 28 '15

Field and office methods employed by Louisville water co. in checking construction gang payrolls. G. D. Crain, Jr. *Eng & Contr* 43:102-3 F 8 '15

Importance of personal touch. N. Hutchings. *Iron Tr R* 57:761 O 14 '15

Timekeeping and cost records for way department. S. Gausmann. *Elec Ry J* 46:596-8 S 18 '15

Who should keep way department time? *Elec Ry J* 46:635-6 S 25 '15

Time measurements

Indicating and recording of time. *Sci Am S* 79: 299 My 8 '15

Time measured graphically. F. R. Honey. *Sci Am* 113:446 N 20 '15

Time perception

Motion picture magic; playing tricks on time. C. H. Claudy. *Il Sci Am* 112:454-5 My 15 '15

Time signals

Device for receiving wireless time signals. *Il diag Elec W* 65:818-19 Mr 27 '15

Records of radio time signals made with a physiological recorder. C. W. Waggoner. *Il Sci Am S* 79:152 Mr 6 '15

Time study

Applying scientific management. H. K. Hathaway. *Iron Tr R* 57:739-42+, 787-93 O 14-21 '15; Same. *Foundry* 43:440-4, 502-7+ N-D '15

Cost of loading bricks into a box car by means of a portable belt conveyor. A. C. Haskell. *diag Eng & Contr* 44:204 S 15 '15

Fixing standard time for a bonus system. Z. L. Potter. *Ry Age (Mech ed)* 89:192-3 Ap '15

Making instruction cards from time studies. D. V. Merrick. *Iron Age* 95:560-3 Mr 11 '15

Operating a foundry on a scientific basis. F. A. Parkhurst. *Il Foundry* 43:21-6, 53-8 Ja-F '15

Practical utilization of time study data. D. V. Merrick. *Ind Eng* 15:31-4 F '15

Results of a time study on steam-main construction. *Am Gas Light J* 103:13 J1 5 '15

Superintendents can save money by short time studies. A. C. Haskell. *Eng Rec* 71:341 Mr 13 '15

Time study on excavating and handling material. *Munic Eng* 49:77 Ag '15

Time study shows expensive defect in cement-handling methods. *Eng Rec* 72:460 O 9 '15

Use and abuse of time studies. A. A. Dowd. *Iron Age* 95:300-3 F 4 '15

Utilization of time study data. R. T. Kent. *Iron Age* 95:1178-81 My 27 '15; Same. *Iron Tr R* 56:1109-13+ Je 3 '15; Same. *Ind Eng* 15:98-103 S '15

See also Task system

Timepieces. See Time measurements; Watches

Tin

- Investigation of fusible tin boiler plugs. G. K. Burgess and P. D. Merica. *U S Bur Stand Tech Pa* 53:1-37 '15; Same cond. *J Ind & Eng Chem* 7:824-9 O '15; Abstracts. *Iron Age* 95:1403-4 Je 24 '15; *Am Gas Light J* 103:29-30 J1 12 '15; *Am Soc M E J* 37:854 N '15; *Power* 42:733-4 N 23 '15
- Pearce assay for tin. *Eng & Min J* 98:1142 D 26 '14
- Situation in tin. *Eng & Min J* 99:588 Mr 27 '15
- Tin production. *Metal Work* 83:936-7 Je 25 '15
- Tin production in the United States, 1914. *Eng & Min J* 99:68-8 Ja 9 '15
- Use of hydrofluoric acid in the separation of copper and lead from tin and antimony by means of the electric current. L. W. McCay. *Am Chem Soc J* 36:2375-81 N '14

Tin metallurgy

- Attempt at tin concentration. J. Simmons. *Eng & Min J* 99:816-17 My 8 '15
- Tin-ore dressing at Llallagua, Bolivia. D. Copeland and S. E. Hollister. *Eng & Min J* 100:461-4, 513-15, 555-8 S 18-O 2 '15

Tin mines and mining

- Hydro-electric plant at a Bolivian tin mine. M. R. Lamb. *Eng & Min J* 99:7-9 Ja 2 '15
- Prospecting for tin. *Eng & Min J* 99:295 F 6 '15
- Tin mining in Alaska. *map Eng & Min J* 100:338-9 N 20 '15
- Tin mining in Bolivia. M. G. F. Soehnlein. *Eng & Min J* 99:143-5 Ja 16 '15
- Tin mining in Bolivia. M. R. Lamb. *Eng & Min J* 99:605-6 Ap 8 '15
- Tin-ore dressing at Llallagua, Bolivia. D. Copeland and S. E. Hollister. *Eng & Min J* 100:461-4 S 18 '15
- Trip through Bolivia. S. C. Bullock. *Eng & Min J* 100:421-4 S 11 '15

Tin plate

- How tin plate is made in Germany. Von W. Kramer. *diag Iron Tr R* 57:359-60 Ag 19 '15
- Metal, tin-plate and sheet prices for seventeen years. *Iron Age* 95:24-24a Ja 7 '15
- Sheet and tin-plate trades in 1914. B. E. V. Luty. *Iron Age* 95:10-11 Ja 7 '15

Tinning

- Determining price for tinning utensils. *Metal Work* 84:651-4 N 19 '15
- Method of retinning copper ware. H. F. Munro. *Metal Work* 83:474 Mr 26 '15

Tintic mining district. See Geology—Utah

Tire fabrics

- Tests for tire fabrics. *Il Textile World* 49:562-4 Ag '15

Tire pumps

- Engine-driven tire pumps for 1915. *diag Automobile* 32:330-5 F 18 '15
- J. M. engine-driven tire pump. *Il Horseless Age* 35:571 Ap 28 '15
- Stewart pump supplies cool air. *Automobile* 33:303 Ag 15 '15
- Temperature variation of air from hand and power tire pumps. G. Adams. *Horseless Age* 36:177 Ag 15 '15
- Tire sustaining pump. *diag Horseless Age* 35:752 Je 2 '15

Tires

- Annealing oven for tires. W. E. Grum-Grzimallo. *diag Iron Age* 94:1297 D 17 '14
- Danger of welding processes as applied to tires and wheels. M. D. Hayes. *Il Elec Ry J* 45:942-4 My 15 '15
- Electric heater for shrink fits. *Il Elec Ry J* 46:960-1 N 6 '15
- Sizes required of wheels and tires in heavy traffic, for road protection. *Automobile* 32:1083 Je 17 '15
- Suggestions regarding the determination of the properties of steel. A. N. Mitinsky. *Am Inst Min E Bul* 104:1597-1705 Ag '15; Abstract. *Iron Age* 96:432-3 Ag 26 '15; Same cond. (Proportional limit is prime factor) *Iron Tr R* 57:1184-6 D 16 '15; Discussion. *Am Inst Min E Bul* 108:2481-95 D '15

Tires (automobile)

- Bostonian argues for resiliency as the measure of tire efficiency. *Automobile* 33:16-18 J1 1 '15
- Carrying capacities and tire pressures. H. S. Quine. *Automobile* 33:427 S 8 '15

Clincher vs. straight side tires. C. E. Duryea. *Horseless Age* 35:167 F 3 '15

Cord tire—its origin, development and construction. J. F. Palmer. *diag Automobile* 32:1020-2 Je 10 '15

Cord tires score in road racing. *Il Automobile* 33:366-7 Ag 26 '15

English tire advertisers hit at competitors. *Horseless Age* 35:953 Mr 10 '15

Hard-base solid tires gain followers. *Il Automobile* 33:961-2 N 25 '15

Heating motor truck steel tires electrically. *Mach* 22:5 S '15

Heavy duty truck tires. *Il Munic Eng* 49:158-9 O '15

High tire prices not to last long. *Horseless Age* 34:305 A 28 '14

How to make tires last longer. *Horseless Age* 35:641 My 12 '15

Makers should base tire equipment on car weight. C. B. Whittelsey. *Automobile* 32:38-9 Ja 7 '15

Measuring the hardness and elasticity of rubber. *Il Sci Am* 113:236 S 11 '15

New tire for motor trucks. *diag Eng & Contr* 44:54 J1 21 '15

Frogs and cons of tire inflation. C. B. Whittelsey. *Horseless Age* 35:61-2 Ja 13 '15

Resilience no true gauge for tire efficiency and efficiency no measure of needs. *Automobile* 32:1037-40 Je 10 '15

Size and inflation of pneumatic tires. P. W. Litchfield. *Horseless Age* 35:805-6 Je 16 '15

S. A. E. advances. *Automobile* 31:1448-9 D 24 '14

Sponge rubber with nitrogen under tension for filling tires. *Automobile* 32:993 Ja 3 '15

Tire makers enlarge plants and develop product. *Il Automobile* 33:955-60 N 35 '15

Tire qualities demanded if air tires were discarded. *diag Automobile* 32:810-11 My 6 '15

Tire sizes standard. *Automobile* 32:85 Ja 14 '15

Tires and tire sundries, rims and wheels at the New York show. H. H. Brown. *diag Horseless Age* 35:108-9 Ja 20 '15

See also Tire pumps

Repair

A. C. A. tests tireseal and multiple rings. *Automobile* 32:110+ Ja 21 '15

How to splice inner tubes. *Automobile* 33:243 Ag 5 '15

Relation of tire repairing to the garage. M. E. Faber. *Horseless Age* 35:640 My 12 '15

Tireseal

A. C. A. makes two certified tests. *Horseless Age* 35:122 Ja 20 '15

A. C. A. tests tireseal and multiple rings. *Automobile* 32:110+ Ja 21 '15

Titanium

Effect of titanium alloys on steel. G. F. Comstock. *Il Iron Tr R* 57:391-5+ Ag 26 '15

Has titanium any influence on the properties of steel? F. A. J. FitzGerald. *diag Met & Chem Eng* 13:28-9 Ja '15; Same cond. *Iron Age* 95:309 F 4 '15; Summary. *Elec Ry J* 45: 98 Ja 9 '15

How titanium-aluminum bronze is produced. C. Vickers. *Il Foundry* 43:273-3 J1 '15

Slags from titaniferous ores. F. E. Bachman. *diag Iron Tr R* 55:1040-2 D 3 '14

Titanium aluminum bronze. W. M. Corse and C. Vickers. *Metal Ind n s* 13:190-1 My '15

Titanium-aluminum bronze castings. W. M. Corse. *Met & Chem Eng* 13:511-12 Ag '15

Titanium and its effects on steel. G. F. Comstock. *Il J Ind & Eng Chem* 7:87-94 F '15; Same cond. *Sci Am S* 80:327 N 20 '15

Titanium and titaniferous ores. P. H. Berggreen. *Sibley J* 29:227-30 Ap '15

Volumetric estimation of titanium by means of ferric chloride. T. R. Ball and G. M. Smith. *Il Am Chem Soc J* 36:1833-43 S '14

Titration. See Volumetric analysis

Titration (water measurement). See Water flow

Titusville, Pennsylvania

Politics and government

Year of the commission-manager plan at Titusville, Penn. L. O. Bradley. *Eng N* 72: 1155 D 10 '14

Toads. See Tree toads

- Tobacco**
 Detoxication of tobacco. *Sci Am* 112:101 Ja 30 '15
 Tobacco trade of the world. *U S Sp Cons Rep* 68:1-48 '15
- Toilet articles**
 British India. *U S Sp Cons Rep* 72:276-85 '15
- Toilet rooms**
 Home plant sets example in sanitation: plumbing equipment of the Trenton potteries co. *Il Metal Work* 82:749 D 4 '14
 Modern toilet rooms in public schools. J. Graham. plans *Dom Eng* 70:332-4, 402-5 Mr 13, 27 '15
 Plumbing in toilet of railway station. *Il plans Metal Work* 83:117-18 Ja 15 '15
 Saving space in sanitary plans. *Il plan Metal Work* 83:469-70 Mr 26 '15
 Toilet regulations for industrial establishments: report of committee. *Boston Soc C E J* 2:79-89 F '15; Same cond. (Sanitation in shops and factories) *Eng M* 49:100-1 Ap '15
See also Bathrooms; Public comfort stations; Schoolhouses—Toilet rooms; Water closets
- Toledo, Ohio**
 Wharves
 Toledo coal dock built in record time. *Il plan Eng N* 74:520-2 S 9 '15
- Tolerances.** *See* Fitting (machinery)
- Toluene**
 Recovery of toluene from gas. *diags J Ind & Eng Chem* 7:438-9 My '15
 Toluene recovery plant at Beckton, England. plan *Am Gas Light J* 102:332 My 24 '15
- Toluidides**
 Toly esters and toluidides of the nitro-sulfonic acids of *p*-xylene. R. C. Huston. *Am Chem Soc J* 37:2119-22 S '15
- Toluol**
 Dr. Rittman's gasoline process. *Sci Am* 112:248 Mr 13 '15
 Increased gasoline yield and toluol from petroleum. *Am Gas Light J* 102:156-7 Mr 8 '15
 Rittman process of cracking. C. H. Claudy. *Il Sci Am* 112:267 Mr 20 '15
- Tomatoes**
 Canned-tomato industry in Italy. J. A. Shriver. *U S Bur For & Dom Com* 93:1-23 '15
 Examination of tomato pulp. W. D. Bigelow and F. F. Fitzgerald. *J Ind & Eng Chem* 7:602-6 Jl '15
 Iron in tomatoes. C. A. Brautlecht and G. Crawford. *J Ind & Eng Chem* 6:1001-2 D '14
- Tonnage, Train.** *See* Railroads—Train load
- Tonopah mining companies**
 Tonopah in 1914. F. Bradshaw. *Eng & Min J* 99:154-5 Ja 16 '15
- Tool holders**
 Cutting tool holders. *Il Iron Age* 95:559 Mr 11 '15
 J. H. Williams & co.'s tool-holders. *Il Mach* 21:589-90 Mr '15
 Lathe tool holder with stellite cutter. *diag Iron Age* 96:979 O 28 '15
 Peerless drill and reamer holder. *Il Mach* 21:838-9 Je '15
 Rigid boring-tool system. *Il Elec W* 66:604-5 S 11 '15; *Metal Ind n s* 13:385 S '15; *Ry Age* (Mech ed) 89:595-6 N '15
 Turning tool-holders. J. Horner. *diags Mach* 21:955-61; 22:6-9 Ag-S '15
- Tool steel**
 Cause of high speed steel tool failures. G. J. Brunelle. *Ry Age* (Mech ed) 89:369-70 Jl '15
 Cobalt steel; material for accelerating machine tool speeds and output. *Sci Am S* 79:379 Je 12 '15
 Cutting tools. *Il Engineer* 119:275-7 Mr 19 '15
 Effect of chromium and tungsten upon the hardening and tempering of high-speed tool steel; abstracts, with discussion. C. A. Edwards and H. Kikkawa. *Engineer* 120:313-14 O 1 '15; *Iron Age* 96:1126-7 N 11 '15
 Factors in hardening tool steel: abstracts. J. A. Mathews and H. J. Stagg. *Elec Ry J* 44:1249-50 D 5 '14; *Iron Age* 94:1840-4 D 10 '14; *Mach* 21:396-9 Ja '15; *Ind Eng* 15:58-9 F '15; *Ry Age* (Mech ed) 89:243-7 My '15; *Iron Tr R* 57:184-7+ Jl 23 '15; Abstract, with discussion. *Am Soc M E J* 37:141-7 Mr '15
 Failure and heat treatment of drill steel. S. V. Bergh. *Il diags Eng & Min J* 99:612-14 Ap 3 '15
 Failure of hollow drill-steel. T. E. Sturtevant. *Eng & Min J* 99:579 Mr 27 '15
 High speed tool steels. F. C. A. H. Lantsberry. *Il Iron Age* 96:238-41 Jl 29 '15; Abstract. *Am Soc M E J* 37:299 My '15
 Machine steel for small tools. O. D. Kinsey. *Il diags Ry Age* (Mech ed) 89:189-90 Ap '15
 Positive identification of tool steels. *Iron Age* 96:200 Jl 23 '15
 Progress in machine shop methods. E. R. Norris. *Il Iron Tr R* 57:679-82+ O 7 '15
 Running tool steel pinions with soft steel gears; abstract. E. S. Sawtelle. *Ind Eng* 14:467 D '14
 Structure of carbon tool steel. J. V. Emmons. *Il Iron Age* 95:842-3 Ap 15 '15
 Surface decarbonization of tool steel. J. V. Emmons. *Il Am Inst Min E Bul* 98:2233-48 S '14; Same cond. *Iron Tr R* 55:727+ O 15 '14; Same cond. *Iron Age* 94:1288-90 D 3 '14; Abstract. *Am Soc M E J* 38:0189-9 O '14; Abstract. *Ind Eng* 15:27-8 Ja '15; Discussion. *Am Inst Min E Bul* 100:790-4 Ap '15
 Testing tool steels; abstract. A. B. Field. *Am Soc M E J* 37:658 N '15
 Why tool steel prices have gone up. E. C. Kreutzberg. *Iron Tr R* 57:987 N 18 '15
- Tools**
 Brown & Sharpe machinists' small tools. *Il Mach* 21:769-80 My '15
 Care and use of the cabinet scraper. C. A. King. *diags Bldg Age* 37:37-8 Jr '15
 Illinois Central tool system; standardization and distribution include a central tool room with an accurate cost system. O. D. Kinsey. *Il Ry Age* (Mech ed) 89:361-4 Jl '15
 Machine steel for small tools. O. D. Kinsey. *Il diags Ry Age* (Mech ed) 89:189-90 Ap '15
 Safe hand tools. *Il Iron Tr R* 56:523-4 Mr 11 '15; Same. *Eng & Min J* 99:531-2 Mr 20 '15; Same. *Ind Eng* 15:19-20 Ja '15
 Taft-Peirce tool-room specialties. *Il Mach* 21:835-7 Je '15
 Tool equipment for maintenance of way forces. *Ry Age* 59:337-41 Ag 20 '15
 Up-keep of track tools. M. El Carroll. *Il Ry R* 57:341-3 S 11 '15
See also Augers; Machine tools; Machinery; Railroads—Tools and implements; Saws; Square (instrument); Tool steel
- Tools, Machine.** *See* Machine tools
- Tools, Military.** *See* Military tools
- Tools, Pneumatic.** *See* Pneumatic tools
- Topographic maps**
 Topography of the bed-rock under Chicago. R. Peattie. maps *W Soc E J* 19:590-4 Je '14; Same cond. *Eng & Contr* 42:605-7 D 30 '14; Discussion. *W Soc E J* 19:594-611 Je '14
- Topographical drawing**
 Maps and map making. T. H. Holdich. *Sci Am S* 79:38-9 Ja 16 '15
 Platting topography to distorted scale (valuation board requirement). *Eng N* 73:123-4 Ja 21 '15
 Speeding up the plane table. R. T. Hancock. *Eng & Min J* 100:840-1 N 20 '15
- Topographical surveying**
 Cost of topography for irrigation works in British Columbia. B. P. Little. *Eng & Contr* 43:384-5 Ap 28 '15
 How the government makes surveys for local use. G. O. Smith. *Eng Rec* 71:632-3 My 29 '15
 Methods and cost survey of Trinity river, Texas. T. H. Jackson. *Eng & Contr* 44:271-3 O 6 '15
 Need of a city plan and of a city topographic map. J. W. Shirley. *Eng N* 73:281-2 F 11 '15
 Propriety of government surveys for local use. W. N. Brown. *Eng Rec* 72:86-6 Jl 17 '15
 Reasons for city topographic survey. H. C. Mitchell. *Eng N* 73:280-1 F 11 '15
 Topographic survey of the city of Dayton, Ohio. R. H. Randall. *Eng N* 74:942-3 N 11 '15
 Topographic surveys for logging operations. E. A. Marshall. *Il diag Eng N* 73:1112-15 Je 10 '15

Topography. See Topographical drawing

Tops

How a top stands up. J. Swinburne. *Inst E E* J 53:349-50 Mr 1 '15; Same; with discussion. *Sci Am S* 80:197 S 25 '15

Toronto, Ontario

Harbor

Harbor developments at Toronto, Ont. *Eng & Contr* 48:sup21 My 26 '15
Toronto breakwater to curb 10-foot waves. *diags Eng Rec* 70:694-6 D 26 '14

Railroads

Grade crossing elimination in North Toronto, Ontario. *il diag plan Ry Age* 59:555-8 S 24 '15

Streets

Brick paving on steep grades. F. A. Churchill. *il Munic Eng* 48:103-8 F '15

Torpedo boat berth

Concrete pile and cylinder foundations at Charleston. *il diag Eng N* 74:926-9 N 11 '15
Torpedo-boat berth at the Charleston navy yard. *il plan Eng N* 74:872-3 N 4 '15

Torpedo boat destroyers

Bids for new United States destroyers. *Int Marine Eng* 19:553 D '14
Latest French destroyers. *il Int Marine Eng* 20:168-9 Ap '15
Launch of the U. S. destroyer, Cushing. *il Int Marine Eng* 20:88 F '15
Unprecedented accident to a torpedo-boat destroyer: the Aylwin. *il Sci Am* 112:71 Ja 16 '15

Torpedo boats

Superheated steam in torpedo-boat engines. W. H. Miller. *Sci Am* 113:334-4 J1 3 '15
Turbine installation on torpedo boats of the new Spanish navy. *Int Marine Eng* 20:616 N '15

See also Torpedo boat destroyers

Torpedo mines. See Mines, Submarine

Torpedoes

Automobile torpedo. *diags Engineer* 120:77-9 J1 23 '15
Automobile torpedo; its problems and their solution. *il diags Sci Am S* 80:152-4 S 4 '15
Gyrostatic action. J. G. Gray. *diags Sci Am S* 79:188-9 Mr 20 '15
Leon torpedo. *diag Engineer* 120:196-7 Ag 27 '15
Loading and firing submarine torpedoes. *Sci Am* 112:493 My 29 '15
Modern automobile torpedo. E. F. Chandler. *il Sci Am* 113:112-14+ Ag 7 '15
Protection against torpedoes. *Engineer* 119:41-2 Ja 8 '15; Same. *Sci Am S* 79:107 F 18 '15
Submarines and torpedoes. C. N. Hinkamp. *il plan Sci Am S* 80:136-8 Ag 28 '15; Same cond. *Engineer* 120:19 J1 2 '15; Same cond. *Eng N* 74:698-9 O 7 '15
Torpedo attack from the air. *Sci Am* 111:523 D 26 '14

See also Mines, Submarine

Torque

Mechanical effects of electrical short-circuits. S. H. Weaver. *Gen Elec R* 13:1066-74 N '15
Torque characteristics of direct-current motors. A. M. Bennett. *diag Power* 42:748-52 N 30 '15

Torres y Quevedo, Leonardo de

Torres and his remarkable automatic devices. *il diags Sci Am S* 80:296-8 N 6 '15

Torsion

Angle of torsion. B. D. Pinkney. *diags Mach* 22:58 S '15
Angle of torsion. W. B. Gilbert. *diag Mach* 21:381 Je '15

Torsional strengths of guy anchor rods. T. Croft. *diags Elec W* 65:1607-9 Je 19 '15

Tourville (battleship)

New French battleship Tourville. M. K. Barnett. *il diag Sci Am* 113:45 J1 10 '15

Towboats

Diesel motor tug Chickamauga. G. E. Nicholson. *il Int Marine Eng* 20:498-5 N '15
Government towboat Warlot. plans *Int Marine Eng* 20:487-8 N '15

Sea-going steel tug. Bristol. *il plan diag Int Marine Eng* 20:778-9 F '15
Western river steamers and barges. E. A. Burnside. *il plan Int Marine Eng* 20:473-87 N '15

Towers

Church towers, steeples, and spires of Sir Christopher Wren. W. R. Phillips. *il Brickb* 24:185-9, 228-32 Ag-S '15
Design and construction of the 435-ft. steel framed tower of Jewels at the Panama-Pacific international exposition. F. S. M. Harris. *il diags Eng & Contr* 43:47-54 Ja 20 '15; Same cond. *Eng N* 73:866-72 My 6 '15; Same cond. *Eng Rec* 71:112-16 Ja 23 '15
Earthquake-proof tower. C. Derleth, jr. *il Eng M* 49:927 S '15
Reinforced-concrete cap of Perry memorial column. H. C. Baird. *diags Eng N* 74:154-5 J1 22 '15
Sulphite-solution plant of reinforced concrete: four 99-foot towers 8.5 feet in diameter with a special tile lining. *il Eng Rec* 70:610 D 5 '14
Towers for radio-telegraph stations. *il diags Engineer* 119:427-8 Ap 30 '15

Towers, Hoist. See Hoist towers

Towers, Portable

Portable tower for maintenance of street lamps. *diag Elec W* 66:144 J1 17 '15

Towers, Steel

Clean-up work after erecting three 600-ft. radio towers. *Eng N* 74:28 J1 1 '15
Foundations for high towers at Darien, C. Z. I. W. Dye. *il diag Eng N* 73:1178-9 Je 17 '15
Foundations for transmission line towers and tower erection. J. A. Walls; J. B. Leeper; W. E. Mitchell; P. M. Downing; F. C. Connery. *diags pls Am Inst E E Pro* 34:1167-97, 1369-77 Je-J1 '15; Abstract. *Elec W* 66:8-10 J1 3 '15
Method of erecting Marconi masts. L. H. Peebles. *il diag Eng N* 73:1132-4 Je 10 '15
600-ft. self-supported radio towers at Darien, C. Z. I. W. Dye. *il diag Eng N* 73:1228-31 Je 24 '15
Weakness in steel towers. B. Haskell. *Elec W* 66:204-5 Ja 28 '15

Towers, Transmission

Construction of tower foundations; abstract. F. C. Connery. *diags Elec W* 66:136 J1 17 '15
Design of transmission towers for the Cohoes hydroelectric plant analyzed. *diags plan Eng Rec* 71:677-8 My 29 '15
Foundations for transmission line towers and tower erection. J. A. Walls; J. B. Leeper; W. E. Mitchell; P. M. Downing; F. C. Connery. *diags pls Am Inst E E Pro* 34:1167-97, 1369-77 Je-J1 '15; Abstracts. *Elec W* 66:8-10 J1 3 '15; *Eng N* 74:159-61 J1 23 '15; Discussion. *Am Inst E E Pro* 34:3117-26 D '15
New Carqueinez Straits high-tension crossing. *il Eng N* 74:248-9 Ag 5 '15
One boiler room instead of fifty: Cabin Creek plant of the Virginia power company. *il diags Elec W* 66:286-91 Ag 7 '15
Plan to defeat rust on legs of transmission-line towers. *il Elec W* 66:1090 N 13 '15
Steel-tower, transmission-line construction. A. B. Cudebec. *il Elec W* 66:127-23 J1 17 '15
Tower foundations for the Cristobal-Balboa transmission line. I. W. Dye. *il diags Eng Soc W Pa* 30:973-90 Ja '15; Same. *Ry R* 56:728-31 My 29 '15; Same cond. *Eng & Contr* 44:317-20 O 20 '15
Transmission towers of 3-in. pipe. *il diag Elec W* 66:574 S 11 '15
Wooden river-crossing towers. *il diags Elec W* 66:586-7 S 11 '15

See also Electric lines

Towing

Electric towing at Panama. *il diag Elec Ry* J 45:285-7 Ja 30 '15
Towing locomotives for the Panama canal. C. W. Larson. *il diag Gen Elec R* 18:101-17 F '15; Same cond. *Eng N* 73:145-7 Ja 28 '15; *Ry Age* 58:189-91 Ja 29 '15; *Elec R & W Elec'n* 66:187-91, 283-7 Ja 30-F 6 '15; *Elec W* 66:288-90 Ja 30 '15; *Eng Rec* 71:134-6 Ja 30 '15; *Ry R* 56:160-3 Ja 30 '15; *Sci Am S* 79:72-4 Ja 30 '15; *Eng M* 48:744-8 F '15; *Int Marine Eng* 20:181-2 Ap '15; *Engineer* 119:323-5 Ap 2 '15

- Track-clearance records.** See Railroads—Clearance
- Track inspection.** See Railroads—Track inspection
- Track scales**
Foundation, construction and care of track scales. A. Malmstrom. Ry Age 58:269 F 12 '15
Proposed rating system for track scales. A. M. Van Auker. Eng N 74:115 J1 15 '15
- Testing**
Adjusting railroad track scales. H. L. Van Keuren. Ry Age 59:958-60 N 19 '15
Relative merits of long and short wheel base scale-testing cars. C. A. Briggs. Il diags Ry R 57:197-201 Ag 14 '15
- Track stresses.** See Rails—Stresses
- Tracks**
Plank track carries drag-line excavator half mile in 10 hours. diag Eng Rec 71:152 Ja 30 '15
- Tracks, Mine.** See Mine tracks
- Tracks, Railroad.** See Railroads—Track; Street railroads—Track
- Traction engines.** See Tractors
- Tractive effort**
Diagram for determining percentage of maximum tractive effort. L. R. Pomeroy. Ry Age (Mech ed) 89:453-4 S '15
See also Locomotives—Performance
- Tractors**
American caterpillar traction engine. Engineer 120:255 S 10 '15
Bull tractor. Il Munic J 39:237 Ag 12 '15
Centiped tractor truck. Il Munic Eng 49:83 Ag '15
Coming of the motor plough. Il diag Engineer 120:361-4, 408-10 O 15, 29 '15
Creeping grip tractor. Il diags Engineer 119:560-3 Je 4 '15
Demand for small tractors. Am Ind 16:39 O '15
Farm tractor field widens. P. S. Rose. Automobile 33:752-3 O 21 '15
Farm tractors and their motors. P. S. Rose. Horseless Age 35:799-800 Je 16 '15; Abstract. Eng M 49:750-2 Ag '15
Four-wheel drive for motor tractors. Horseless Age 36:367-8 O 15 '15
France to subsidize farm tractors. Il Automobile 33:644-5 O 7 '15
General purpose gasoline tractor. Il Eng & Contr 42:187 Ag 12 '14
Genesis of the traction engine. J. L. Mowry. Assn Eng Soc J 54:44-8 Ja '15
Good tractor. Il Engineer 130:56-7 J1 16 '15
Gray tractor. Il Munic J 39:377 S 2 '15
Harvesting grain by motor power. Il Sci Am 112:612 Je 19 '15
Interesting forms of farm truck-tractors. V: W. Page. Il diags Sci Am 113:344 O 16 '15
Knox 10-ton tractor. Il diags Horseless Age 35:308-8 Mr 3 '15; Automobile 32:416-19 Mr 4 '15; Eng & Contr 43:232-3 Mr 10 '15; Eng N 73:504-6 Mr 11 '15
Knox tractors doing heavy hauling. Il Eng & Contr 44:297 O 13 '15
Light tractors for construction work. Il Eng N 73:79 Ja 14 '15
Light tractors for industrial service. Il Eng N 73:1019 My 27 '15
Long chances with the portable engine. L. Addy. Power 41:814-15 Je 15 '15
Mercury freight house tractor truck. Il Ry Age 58:361-2 F 28 '15
Operation analysis of new machines which cheapen the moving of earth on road work. A. B. McDaniel. Il Eng Rec 72:126-8 J1 31 '15
Performance of a small gasoline tractor with caterpillar pilot-wheel. J. G. Bennett. Il Eng N 73:494-5 Mr 11 '15
Powerful motor tractors. Sci Am 111:525 D 26 '14
Progress in small farm tractors. L. W. Ellis. Il Sci Am 112:306-8 Ap 3 '15
Road tractors. F. H. Trego. Horseless Age 35:797-8 Je 16 '15
Royal agricultural show at Nottingham. Il Engineer 120:30-1 J1 9 '15
Small caterpillar tractors for miscellaneous hauling. Il Eng N 72:1316 D 31 '14
Small farm tractor. Sci Am 112:304 Ap 3 '15
10,000 farmers at tractor test. Automobile 33:308 Ag 12 '15
10-ton tractor for horse trucks. Il Iron Age 95:509 Mr 4 '15
Theory of resistance to rolling of a hard body over a plastic surface; abstract. B. B. Schultz. Am Soc M E J 37:478-9 Ag '15
Tractor truck for contractors' hauling. Il Eng & Contr 43:185 F 24 '15; Munic J 38:447-8 Ap 1 '15
Universal tractor co.'s tractors. Il Horseless Age 34:386 D 16 '14
Wide-spread use of the steam road locomotive in England. Il Sci Am 112:471 N 27 '15
See also Electric tractors; Gas tractors
- Trade acceptances**
Use of trade acceptances in business. E. F. DuBrul. Am Ind 16:25-7 N '15
- Trade agreements**
United States commission on industrial relations makes report of progress. Iron Tr R 55:1100-1 D 10 '14
See also Arbitration, Industrial
- Trade associations**
Commercial organizations in the United Kingdom with a description of British manufacturers' and employers' organizations. A. J. Wolfe. U S Bur For & Dom Com 102:41-53 '15
Man who wouldn't join. K. C. Cardwell. Dom Eng 69:332 D 12 '14
Master mechanic and general contractor. E. B. Tonnesen. Metal Work 83:296-7 F 19 '15
- Trade catalogs.** See Catalogs
- Trade commission, Federal.** See United States—Federal trade commission
- Trade marks**
British India. U S Sp Cons Rep 72:138-44 '15
Cancellation of the ten-year clause. Sci Am 113:84 J1 24 '15
Detroit's trade-mark contest. Sci Am 112:323 Ap 3 '15
Register trade marks in Latin America. Automobile 33:411 S 2 '15
Ruling affecting owners of trade marks. H. C. Thomson. Textile World 48:379 Ja '15
- Trade papers**
Money and time saving recording systems; reading of trade journals and books. R. T. Gebler. Metal Work 84:300-2 S 3 '15
News service of trade and technical press. W. H. Taylor. Metal Work 83:649 Ap 30 '15
Profit from reading their trade paper. Il Metal Work 83:439+ Mr 19 '15
Trade papers adopt standards of practice. Elec R & W Elec'n 67:537 S 18 '15
- Trade schools**
Machine design in a Rhode Island school. W. E. Freeland. Il diags Iron Age 96:1105-7 N 11 '15
Teaching shop work. Mach 21:975 Ag '15
Trade school idea at Gary, Ind. Il Bldg Age 37:25-8 S '15
Training carpenters for the trade at Bridgeport. J. F. Johnson. Il Am Ind 15:26-8 Mr '15
Vocational training in French cities. F. L. Glynn. Il Metal Work 83:760-1+ D 11 '14
See also Corporation schools; Industrial education
- Trade unions**
Commercial organizations in the United Kingdom with a description of British manufacturers' and employers' organizations. A. J. Wolfe. U S Bur For & Dom Com 102:37-53 '15
Employer sustained in excluding union men. Ry Age 58:208 Ja 29 '15
Legal decisions on mining questions: miners may legally join labor organizations. Colliery 35:396 F '15
See also Arbitration, Industrial; Employers' associations; Labor and laboring classes; Open and closed shop; Picketing; Strikes; Trade agreements
- Trade waste**
Determination of the biochemical oxygen demand by the saltpeter method in stockyards, tannery and corn products wastes. A. Lederer. J Ind & Eng Chem 7:514-16 Je '15

Trade waste—Continued

- Disposal of cannery wastes. D. Englis. Munic J 88:88-9 Ja 21 '15
 Experience gained in the treatment of the wastes from the scouring of wool. H. R. Crohurst and A. D. Weston. Eng & Contr 44:370-6 N 10 '15
 Liquid trade wastes. Sci Am S 80:51 Jl 24 '15
 Maintenance of sewers and disposal works demands treatment of injurious trade wastes. W. L. Stevenson. Eng Rec 71:256-60 F 27 '15
 Processes available for the treatment of industrial wastes. Eng & Contr 43:363-5 Ap 21 '15
 Summary of the results of experiments on the purification of creamery refuse and their application. H. R. Crohurst and A. D. Weston. Eng & Contr 44:7-9 Jl 7 '15
 Test plant operated to deodorize oil refinery wastes. F. R. Hesser. II diag Eng Rec 72:541-2 O 30 '15

Trades schools. See Trade schools**Trading stamps**

- Trading stamps and premium legislation. E. J. Buckley. Metal Work 83:753 My 21 '15

Traffic league, National Industrial. See National industrial traffic league**Traffic regulation. See Street traffic****Traffic signs**

- Semaphore type of street signal. diag Eng N 74:511 S 9 '15
 Street traffic signals, Cleveland, O. II Munic J 89:697 N 4 '15
 Traffic-control signal. II plan Eng N 74:320 Ag 12 '15
 Traffic signal for fire apparatus. Munic J 89:328 Ag 28 '15
 Traffic warning signs. H. M. White. II Munic J 88:658 My 13 '15
 Warning semaphore with light and horn for fire engines. Munic J 89:329 Ag 26 '15

Traffic surveys. See Road traffic; Street railroads—Traffic; Street traffic**Trailers. See Street cars—Trailers; Street railroads—Trailer operation****Train dispatchers**

- Duties of a train despatcher. Ry Age 59:318 Ag 20 '15
 Train despatcher as a revenue solicitor. J. L. Coss. Ry Age 59:322 Ag 20 '15
 Train dispatchers' association of America 28th annual convention, St. Paul, Minn., June 15. Ry Age 59:16-17 Jl 2 '15

Train dispatching

- Automatic telephone system at the Kansas City terminal. II Ry R 55:768-70 D 26 '14
 Dead train orders. J. L. Coss. Ry Age 57:1122-3 D 18 '14
 Radio telegraphy and telephony for railroads. J. L. Hogan, Jr. II diag Elec W 66:570-2 S 11 '15
 Telephone train dispatching on the Cedar Rapids & Iowa City railway. II Elec Ry J 44:1309 D 12 '14
 Train despatcher—who has no grievance committee. W. E. Watts. Ry Age 58:217-18 F 5 '15

Wireless telegraph and telephone on the D. L. & W. R. R. L. B. Foley. II Ry R 56:491-3 Ap 10 '15**Train ferries. See Car ferries****Train indicators**

- National train indicators at Kansas City. II Ry Age 58:272-3 F 12 '15
 Train indicators at Euston, London, station. II Ry Age 58:739 Ap 2 '15

Train lighting. See Car lighting**Train load. See Railroads—Train load****Train resistance**

- Hump-yard calculations. C. C. Wentworth. Eng N 74:750 O 14 '15
 Rolling resistance of cars over switches and frogs. C. L. Eddy. Ry Age 58:796-8 Ap 9 '15
 Scientific train loading; tonnage rating. O. S. Beyer, Jr. Ry Age 59:507-11 S 17 '15; Same. Ry Age (Mech ed) 89:502-5 O '15; Same abr. Ry R 57:594-8 N 6 '15
 Starting resistance of electric cars. F. E. Wynne. Elec Ry J 46:401-2 S 4 '15

Tests of car resistance. C. L. Eddy. Eng N 73:899-900 My 6 '15; Same. Sci Am S 80:111 Ag 14 '15

Train resistance of electric cars at starting. D. D. Ewing. Elec Ry J 46:279-80, 637 Ag 14, S 25 '15

Train sheds. See Railroads—Train sheds**Train staff. See Railroads—Signals****Trains. See Railroads—Trains****Trains, Hospital. See Hospital trains****Trainsheds. See Railroads—Train sheds****Trans-Siberian railway. See Siberian railway****Transit, Surveyors'**

Horizontal cross-hair adjustment of the engineer's transit. M. F. Sayre. Eng N 73:396 F 25 '15

New Smith solar attachment. A. D. Kidder. II Eng N 73:1068-70 Je 3 '15

One-piece trussed transit standards. II Eng N 74:1056 N 25 '15

Transmission of power. See Power transmission**Transportation**

American engineer in China. W. B. Parsons. II map J Fr Inst 179:381-413 Ap '15; Abstract. Eng M 49:480-4 Je '15

Economic elements involved in transportation and communication problems on country roads. Eng & Contr 43:528-9 Je 16 '15

Railway and the automobile. T. C. Powell. Ry Age 59:804 O 29 '15

Transportation in the fair grounds; intramural railway, auto trains, rolling chairs and moving platform at the Panama-Pacific international exposition. II Elec Ry J 46:764-5 Ap 17 '15

Transportation on land and sea; the growth of the railway and the steamship. II Sci Am 112:623-6+ Je 5 '15

See also Aeronautics; Automobiles; Commerce; Demurrage; Electric railroads; Express companies; Ferryboats; Freight car service; Freight handling; Haulage; Jinney buses; Mine haulage; Motor trucks; Motor vehicles; Pneumatic tubes; Ports; Railroads; River traffic; Shipping; Steamboats; Street railroads; Telpherage; Terminals; Trucks; Vehicles; Waterways

Transportation, Military

General locomotive. Sci Am 112:212 Mr 6 '15
 Mechanical traction in war. Sci Am S 78:407 D 26 '14

See also Automobiles in war; Hospital trains; Motor trucks, Military; Motorcycles in war; Railroads in war

Transportation and car accounting officers, Association of. See Association of transportation and car accounting officers**Transportation exhibits. See Railroads—Exhibitions****Transvaal**

See also Gold mines and mining—Transvaal

Transylvania (steamship)

Geared turbine Atlantic liner. plan (p. 435) Engineer 113:433 N 6 '14; Same cond. Eng M 48:605-6 Ja '15

Traveling engineers' association

23d annual convention, Chicago, Sept. 7-10. Ry Age 59:473-4, 505-18 S 10-17 '15
 23d annual convention, Chicago, Sept. 7-10. Ry Age (Mech ed) 89:499-510 O '15
 23d annual convention, Chicago, Sept. 7-10. Ry R 57:337-41, 360-2 S 11-13 '15

Traverse tables

Aids to traverse computations. H. Andrews. Eng N 74:940-1 N 11 '15
 Computation of survey traverses. H. Andrews. Eng N 74:868-9 Ag 5 '15

Do surveyors use traverse tables? Eng N 73:1038-9 My 27 '15

More about traverse tables and survey computations. E. E. Thum. Eng N 74:124-5 Jl 15 '15

Tree planting

Fall planting. J. J. Levison. II Am For 21:861-5 Ag '15
 How to plant a shade tree and how to care for it the first few years. J. J. Levison. II diag Am For 21:992-6 O '15

Tree planting—Continued

- Planting time and care of trees. S. B. Detwiler. Am For 21:100-2 F '15
 Selecting trees and shrubs. Am For 21:591-3 Ap '15
 Successful example of tree planting. A. S. Baldwin. Il Ry Age 58:856 Ap 16 '15
 320 miles of shade trees in Massachusetts. Am For 21:729 Je '15
 Tree planting along the Lincoln highway. G. R. Nevitt. Am For 21:928-9 S '15
See also Forest planting

Tree surgery. *See* Trees, Care of**Tree toads**

- Rare amphibians at the New York zoological park. R. L. Ditmars. Il Sci Am S 80:196 S 25 '15

Trees

- American trees in German forests. J. S. Illick. Il Am For 21:922-7 S '15
 Artificial production of vigorous trees. Sci Am S 79:150 Mr 6 '15
 Baltimore ordinance governing city forester. Munic Eng 48:274-5 Ap '15
 Bermuda's little trees. W. R. Brown. Il Am For 21:186-97 Mr '15
 California tree novelties. E. A. Sterling. Il Am For 21:768-78, 853-80 Jl-Ag '15
 Cannon ball tree of tropical America. Il Sci Am S 79:92 F 6 '15
 Chinese trees do well here. Il Am For 21:564-6 Ap '15
 Effect of tarred roads upon trees. Sci Am 113:344 Ap 10 '15
 Flushing's oldest tree. E. P. Martin. Il Am For 21:614-15 My '15
 Hardwoods on the country estate. W. H. Miller. Il Am For 21:780-91 Jl '15
 How a tree grows. B. Adams. Am For 21:935-6 S '15
 Ornamental and shade trees. J. J. Levison. *See* monthly numbers of American forestry
 Selecting shade trees. S. B. Detwiler. Am For 21:18-21 Ja '15
 Sprout growth of trees. B. Adams. Il Am For 21:1058-61 N '15
 Tree fruits and flowers. W. H. Miller. Il Am For 21:617-25 My '15
See also Forests and forestry; Lumber; Timber; Tree planting; Woodlots; also names of trees, e. g. Chestnut, Cypress, Fir, Hemlock, Juniper, Pine, Tulip tree

Diseases and pests

- Ornamental and shade trees. J. J. Levison. Am For 21:797-801 Jl '15

Trees, Care of

- How to plant a shade tree and how to care for it the first few years. J. J. Levison. Il diags Am For 21:992-6 O '15
 Planting time and care of trees. S. B. Detwiler. Am For 21:100-2 F '15
 Taking the crook out of a tree. H. D. Lipincott; T. B. Meehan. Am For 21:1063-4 N '15

Cost

- Cost of caring for trees in Newark. N. J. Eng & Contr 43:88 Ja 27 '15

Trenches

- Adapted machinery and construction methods employed on new Western avenue sewer, Chicago—time studies. S. E. Bates. Il diags Eng & Contr 44:283-5 O 13 '15
 Backfilling wagons, truck and shovel make record on sewer job. Il Eng Rec 72:521 O 23 '15
 Cheap and effective backfilling with a road roller. B. A. Heinly. Il Eng N 73:941 My 18 '15
 Cost of trench work through brick pavement for wire conduit. F. L. Shidler. Eng & Contr 43:504 Je 2 '15
 Digging and filling trenches by machine. Il Sci Am 111:512 D 19 '14
 Excavating and backfilling sewer trenches by machine. Eng Rec 71:20-1 Ja 2 '15
 Excavating and timbering the very deep trenches required in reservoir and other dam construction. J. M. M. Greig. plans Eng & Contr 44:176-8 S 8 '15

- General utility trench filler. Il Munic Eng 49: 85-6 Ag '15; Munic J 39:414 S 9 '15
 New trenching machines. Il Eng N 74:448-9 S 2 '15
 Power scraper for backfilling trenches. Il Eng & Contr 44:215-16 S 15 '15
 Steam shovel digs 48-inch pipe trench in busy street. F. H. Pond. Il Eng Rec 71:693-4 My 29 '15
 Track-trench excavating machine. Il Elec Ry J 46:74 Jl 10 '15

Trenches, Military. *See* Intrenchments**Trent agitators**

- Slime agitation and solution replacement methods at the West End mill, Tonopah, Nev. J. A. Carpenter. diags Am Inst Min E Bul 104:1639-51 Ag '15; Same. Met & Chem Eng 13:671-6 O 1 '15

Trent river

- Improvement of the river Trent. map Engineer 119:130-1 F 5 '15

Trenton, New Jersey**Streets**

- Trenton's 1914 paving work. H. F. Harris. Il Munic J 38:279-80 Mr 4 '15

Trephining

- Prehistoric man and his early efforts to combat disease. T. W. Parry. Il Sci Am S 78:365-6 D 5 '14

Trestles

- Design, construction, operation and cost of a 2,594-ft. steel stocking trestle at the Negaunee mine, Negaunee, Mich. S. R. Elliott. Il Eng & Contr 44:171-3 S 1 '15
 Permanent stockpile trestle of wood. O. Gustafson. Il diags Eng & Min J 98:1003-4 D 5 '14
 Pile and timber trestle bridges. Ry Age 59: 754-6 O 22 '15
 Piledriver with traversing leads for driving trestle bents. Il diags Eng N 73:28-9 Ja 7 '15
 Record reconstruction at Galveston. Il Elec Ry J 46:867 O 23 '15
 Renewing trestle stringers without delay to traffic. S. C. Tanner. Il diags Ry Age 59: 348 Ag 20 '15
 Trestle building with easily moved pile driver. G. A. Eaton. Il Eng Rec 71:501 Ap 17 '15
 Virgin country renders concrete pipe line construction difficult. B. Ehle. Il diags Eng Rec 72:507-10 O 23 '15

See also Bridges**Trestles, Concrete**

- Concrete trestles on Tennessee division second track, Illinois Central R. R. M. Johnson. Il Ry R 56:715-18 My 29 '15
 Design of standard solid-deck reinforced concrete trestle in use on Illinois Central railroad. Eng & Contr 44:287-9 O 13 '15
 Reinforced-concrete highway trestle. S. M. Cotten. diags Eng Rec 71:54 Ja 9 '15
 Solid deck trestles and bridges on the Illinois Central. Il diags Ry Age 59:279-80 Ag 13 '15
 Unit-construction system applied to a three-mile concrete viaduct to reduce the cost. Il diags plan Eng Rec 72:248-51 Ag 23 '15

Trinitrotoluene

- Trinitrotoluene in the war. Sci Am S 79:171 Mr 13 '15

Trinity river, Texas

- Levee construction on Trinity river. O. W. Finley. Eng & Contr 44:sup29-30 O 6 '15
 Methods and cost survey of Trinity river, Texas. T. H. Jackson. Eng & Contr 44:271-3 O 6 '15

Trioxymethylene

- Action of trioxymethylene on *p*-xylene in the presence of aluminum chloride. R. C. Huston and D. T. Ewing. Am Chem Soc J 37: 2394-9, 2401 O '15
 Action of trioxymethylene on the various hydrocarbons in the presence of aluminum chloride. G. B. Frankforter and W. Kokatnur. Am Chem Soc J 37:2399-401 O '15

Triphenylmethane

- Temperature coefficients and the effects of acids, bases and salts in reaction velocities of the triphenylmethane dyes. H. C. Biddle and C. W. Porter. Am Chem Soc J 37:1571-89 Je '15

Triphenylmethyl

Triphenylmethyl; preparation of *p*-hydroxy-triphenylcarbinol and attempts to isolate the corresponding triarylmethyl. M. Gomberg and R. L. Jickling. *Am Chem Soc J* 37: 2575-91 N '15

Triphenylmethyl; the additive compounds of triphenylmethyl and some saturated hydrocarbons. M. Gomberg and C. S. Schoepfle. *Am Chem Soc J* 37:3569-74 N '15

Trisection of angles

Trisecting an angle mechanically. *Sci Am* 113: 271 S 25 '15

Trolley lines. See Electric railroads**Trolley poles.** See Poles, Concrete**Trolley wheels.** See Electric railroads—Equipment and supplies**Trolley wire**

A. S. T. M. specifications for trolley wire. *Elec Ry J* 46:62-3 JI 10 '15

See also Electric railroads—Wiring

Trolley-wire splicer

Balanced trolley-wire splicer. *diag Elec Ry J* 46:919 O 30 '15

Trolleys

Electric crane trolley. *Il Ry Age* 58:708 Mr 26 '15

See also Electric railroads—Equipment

Troy, New York**Bridges**

Center bearing, machinery and gates, Congress street swingbridge. *diags plan Eng N* 73:804-5 Ap 29 '15

Congress street bridge across the Hudson river at Troy; structural features. H: W. Hodge. *diags Eng N* 73:574-5 Mr 25 '15

Troy, Pennsylvania**Sewerage**

Privately financed system of sewers. H: W. Taylor. *Eng Rec* 71:79-80 Ja 16 '15

Trucks

Methods of handling L. C. L. outbound freight. E. H. Lee. *Ry Age* 57:1181-4 D 25 '14

New type of factory lift truck. *Il Iron Age* 96: 383 Ag 12 '15

See also Car trucks; Electric trucks; Motor trucks

Trusses

Design and construction of roof and wall trusses. M. A. Howe. *diags Brickb* 24:55-8, 83-92, 119-24, 133-6, 175-8 Mr-JI '15

Design of beams, girders and trusses. E. McCullough. *diags Bldg Age* 36:27-8 JI; 33-4 Ag; 29-30 S; 37-9 O; 37-9 N; 27-9 D '14; 37: 39-41 Ja; 31-3 F; 27-8 Mr; 49-50 Ap; 49-50 My; 47-8 Je; 45-6 JI; 27-8 Ag; 29-30 S; 37-8 N; 51-2 D '15

Eccentric heel joint of roof truss; solution of problem. E: H. Rockwell. *Eng N* 74:798-8 O 21 '15

Erecting new trusses on a canal bridge and dam. W. R. Browne. *Il diags Eng N* 74:173-4 JI 22 '15

Gusset-plate diagram. W. M. Elliot. *Eng N* 73:940 My 13 '15

Heavy trusses and foundation girders used in steel bank building. *diags Eng Rec* 71:713-14 Je 5 '15

High stresses carried by heavy riveted truss. *Il diags Eng Rec* 72:159 Ag 7 '15

Moments at eccentric heel-joint of roof truss. C: W. Chassaing. *Eng N* 73:990 My 20 '15

Moments at eccentric heel-joint of roof truss. E: Godfrey. *Eng N* 74:399 Ag 26 '15

Problem in truss design. *Eng N* 73:592 Mr 25 '15

Safe construction of church roof trusses. E. McCullough. *diags Bldg Age* 37:59-61 Ja '15

Stresses in a rigid frame of two columns and a truss; with table. F. Freyhold. *Eng N* 73: 1031-3 My 27 '15

See also Bridges; Building; Girders; Strains and stresses

Trust companies

See also Railroads—Equipment trusts

Trusts, Industrial

Full text of decision in the United States district court for the district of New Jersey. *Iron Tr R* 56:1171-1218 Je 10 '15

German cartel policy. O: H. Luken. *Eng M* 48: 508-16 Ja '15

Government co-operation with our industries. *Sci Am* 112:99 Ja 30 '15

United States steel corporation wins its suit. *Iron Age* 95:1299-1301+ Je 10 '15

See also Clayton act; Public service corporations—Regulation

Trypsin

Comparison of methods for the determination of the proteolytic activity of pancreas preparations. J. H. Long and A. W. Barton. *Am Chem Soc J* 36:2151-66 O '14

Tube milling

Tube-mill tonnage calculation. N. Cunningham. *Met & Chem Eng* 13:22, 138 Ja, Mr '15

Tube-milling: closed circuit. W. J. Pentland. *Met & Chem Eng* 13:326-7 N 15 '15

Tube-milling for the flotation or oil-concentration process. W. B. Easton. *Met & Chem Eng* 13:89-90 F '15

Tube-milling in all-slime cyanide practice. W. J. Pentland. *Met & Chem Eng* 12:750-3; 13:204-5 D '14, Ap '15

Tube-milling tonnage calculation and notes on tube-milling. H. B. Lowden; A. H. Jones. *Met & Chem Eng* 13:70-3 F '15

Tube-milling tonnage calculation and notes on tube-milling. J. H. Haynes. *Met & Chem Eng* 13:10-12 Ja '15

See also Gold milling; Ore treatment

Tube mills

British Portland cement making machinery; shells for ball and tube mills. *Il Engineer* 120: 195-6 Ag 27 '15

Injector for tube-mill feed. N. Carless. *diag Met & Chem Eng* 13:389 Je '15

Manganese-steel castings in the mining industry. W. S. McKee. *Il diag Am Inst Min E Bul* 108:2402-6 D '15; Same. *Iron Tr R* 57: 1079-80 D 2 '15

Scoop discharges for tube-mills. W. R. Dowling. *Met & Chem Eng* 13:874 N 15 '15

Tube-mill end liners. J. F. Pyles. *Met & Chem Eng* 12:784-5 D '14

See also Crushing machinery; Hardinge mill

Tuberculosis

Artificial light treatment of surgical tuberculosis. *Sci Am S* 80:175-6 S 11 '15

Cost of health-seeking. *Sci Am* 112:78 Ja 23 '15

Phthisis conditions on the Rand. A. C. Key. *Eng & Min J* 99:28-9 Ja 2 '15

Pulmonary disease among miners in the Joplin district, Missouri and its relation to rock dust in the mines. A. J. Lanza and E. Higgins. *Il maps U S Bur Mines Tech Pa* 105:1-47 '15; Abstract. *Eng & Min J* 99:331-3 F '15

Tuberculosis, Hospitals and sanatoriums for

Chicago municipal tuberculosis sanitarium. C. A. Erikson. *Il plans Brickb* 24:267-72, pl 151-7 N '15

Cook county tuberculosis colony at Oak Forest, Ill. C. A. Erikson. *Il plans Brickb* 24:273-6, pl 158-60 N '15

Tubes

Drawing metal tubes of special section. C. L. Lucas. *Il diag Mach* 21:457-9 F '15

Drawing smaller sizes of brass tubing. *Il Iron Age* 95:861-3 Mr 25 '15

Seamless drawn steel tubes. *Power* 42:121 JI 27 '15

Simple physical tests for condenser tubes. H: A. Cozzens, jr. *Il Elec W* 66:442 S 18 '15

Small aluminum tubes. J. P. Sheehy. *Il diags Metal Ind n s* 18:55-6 F '15

Tube forming die. A. H. Wilson. *diags Mach* 21:666-7 Ap '15

Wrought iron and steel tubes. J. G. Stewart. *Power* 41:523-4 Ap 13 '15

See also Pipes

Tubes, Boiler. See Boiler tubes**Tubular bridges.** See Bridges, Tubular

Tucson, Arizona

Lighting

Tucson's ornamental street-lighting system. 11 Elec R & W Elec'n 66:962-3 My 22 '15

Tulip tree

Characteristics and seeding of the tulip tree. S. B. Elliott. 11 Am For 21:840-4 Ag '15
Tulip or yellow poplar tree. 11 Am For 21:833-40 Ag '15

Tumbling barrels

Traveling mill for cleaning scrap. 11 plan Iron Age 96:14-15 Jl 1 '15
Tumbling barrel ("Jim Butler") work. T. C. Eichstaedt. Metal Ind n s 13:368-9 S '15

Tungsten

Burnese tungsten. E. Maxwell-Lefroy. Engineer 130:320-1 O 1 '15

Effect of chromium and tungsten upon the hardening and tempering of high speed tool steel; abstract with discussion. C. A. Edwards and H. Kikkawa. Iron Age 96:1126-7 N 11 '15

Melting-point of tungsten. I. Langmuir. J Fr Inst 180:490-2 O '15

Production of tungsten and molybdenum in England. J Ind & Eng Chem 7:719 Ag '15
Separation of tungsten from molybdenum. E. H. Marbaker. Am Chem Soc J 37:86-95 Ja '15

Tungsten in the British empire. Eng & Min J 100:50-1 Jl 10 '15

Tungsten ores in 1914. Eng & Min J 99:229-30 Ja 30 '15

Tungsten—the hardener. J. E. Schipper. 11 Automobile 32:351-4 F 25 '15

Tungsten lamps. See Electric lamps, Tungsten

Tunnel design

Arched reinforced-concrete conduits designed by the theory of least work. W. M. Smith. Eng Rec 71:648-52 My 22 '15

Building a sewer tunnel of special concrete blocks reinforced. A. J. Latonnell. diags Eng N 74:127-8 Jl 15 '15

Construction of water works tunnels in the Metropolitan water district of Massachusetts. W. E. Foss. 11 diags Eng & Contr 42:451-3 N 11 '14

Tunnel fires

Tunnel destroyed by fire on the Southern Pacific. 11 Ry Age 59:116-16 Jl 16 '15

Tunnel lining

Belt conveyors will help simultaneous driving and lining of air tunnel. G. D. Emerson. 11 diags map Eng Rec 72:218-19 Ag 21 '15

City tunnel of the Catskill aqueduct. W. E. Spear. Eng N 73:194-9 F 4 '15

Construction plant and methods employed in building a system of concrete block tunnel sewers at Edmonton, Alberta. diags Eng & Contr 43:361-3 Ap 21 '15

Determination of stresses in and design of cast iron lining for subaqueous tunnels. P. A. N. Seurot. diags Eng & Contr 43:90-2 F 3 '15

Large telescopic steel form for tunnel lining. 11 Eng & Contr 44:152 Ag 25 '15

Light steel lining plates as a substitute for timbering in tunneling. 11 Eng & Contr 44:97 Ag 4 '15

Lining a double track railway tunnel under traffic. R. Meacham. 11 diag Ry Age 59:968-8 N 19 '15; Same. Ry R 57:645-8 N 20 '15; Same. Eng & Contr 44:395-6 N 17 '15

Lining a railway tunnel by compressed air. 11 Eng N 74:1033 N 25 '15

Lining the Snoqualmie tunnel. diag Ry Age 58:152 Ja 22 '15

Lining tunnels on the new Lewistown-Great Falls line of the St. Paul. diag Ry Age 58:978-9 My 7 '15

Lining two 5-ft. tunnels by use of concrete atomizer. 11 Eng N 74:938-9 N 11 '15

Molding and casting large tunnel segments. L. J. Josten. 11 diags Foundry 43:366-9 S '15

Molding cast-iron tunnel linings. L. J. Josten. 11 Iron Age 95:715-19 Ap 1 '15

New intake tower and tunnel at the St. Louis water works. E. C. Davis. 11 Assn Eng Soc J 53:287-93 D '14; Excerpt (Lining the St. Louis water tunnel). Eng N 73:164-6 Ja 28 '15

Placing a concrete lining in the Sandy Ridge tunnel. 11 plan Ry Age 59:533-6 S 17 '15; Same. Ry R 57:327-32 S 11 '15; Same (Self-propelled compressed-air mixing plant) Eng Rec 72:353-5 S 18 '15

Pneumatic outfit delivers concrete 1300 feet to tunnel forms. 11 Eng Rec 71:246 F 20 '15

Records of operation in handling concrete with compressed air. 11 diag Concrete Cem 5:260-3 D '14

Tunnel lining by compressed air. 11 Ry Age 57:1143-4 D 18 '14

Tunnel waterproofing with cement-and-clay mortar. Eng N 73:781-2 Ap 15 '15

Tunnel shields

Collapsed tunnel shield at Memphis rebuilt in bad ground. C. H. Hollingsworth. 11 diags Eng Rec 71:388-9 Mr 27 '15

East river tunnel shields. 11 diags Eng N 74:952-5 N 11 '15

Roof shield used for driving railroad tunnel in soft earth. 11 diags Eng Rec 71:273-3 F 27 '15; Same cond. Eng M 49:280-1 My '15

Tunnel ventilation

Ventilating the Stampede tunnel of the Northern Pacific. 11 diags Ry Age 59:334-5 Ag 6 '15

Ventilation of Allegheny Summit tunnel: successful installation of Virginian railway at one portal of a 5176-ft. bore for the most part of a 1.22-per cent grade. F. F. Harrington. 11 diags Eng Rec 70:324-5 S 19 '14; Same. Gen Elec R 17:1182-5 D '14; Same. Ry R 55:741-3 D 19 '14

See also Subways—Ventilation

Tunnelling. See Tunnels and tunneling

Tunnels and tunneling

Absolute dependability of central-station power. 11 Elec W 65:1255-6 My 15 '15

Belt conveyors will help simultaneous driving and lining of air tunnel. G. D. Emerson. 11 diags map Eng Rec 72:218-19 Ag 21 '15

Bottom heading successful at Snoqualmie tunnel. diags Eng Rec 71:193 F 13 '15

Building invert of Milwaukee intake tunnel. L. G. Warren. diags Eng N 74:892-3 N 4 '15

Calculations showing economy of constructing the Rogers Pass tunnel. J. G. Sullivan. diags Eng & Contr 44:398-400 N 17 '15

Canvas air duct in tunneling. Eng N 74:177-8 Jl 22 '15

Catskill aqueduct tunneling. 11 diag Munic J 38:738-9 My 27 '15

City tunnel of the Catskill aqueduct. W. E. Spear. diags plan Eng N 73:56-60, 98-103, 148-53, 194-9 Ja 14-F 4 '15; Excerpt. Eng M 48:898-900 Mr '15

Collapsed tunnel shield at Memphis rebuilt in bad ground. C. H. Hollingsworth. 11 diags Eng Rec 71:388-9 Mr 27 '15

Completing the Mount Royal tunnel into Montreal. 11 diags plan Ry Age 59:357-60 N 5 '15

Completion of a long tunnel in France. Eng N 74:91-2 Jl 8 '15

Constructing rock tunnel of 50-ft. clear width. Stockton st., San Francisco. E. G. Tilton. 11 diags plan Eng & Contr 43:98-6 F 3 '15

Construction features on the Passaic valley sewer. 11 diags Munic J 38:59-62 Ja 21 '15

Construction of Mile Rock tunnel, San Francisco. 11 Munic Eng 48:211-13 Mr '15

Construction plant and methods employed on new water works intake tunnel at Milwaukee. 11 diags plan Eng & Contr 43:352-5, 371-2 Ap 21-28 '15

Construction progress on the Twin Peaks tunnel. A. J. Cleary. 11 diags Eng N 74:869-71 N 4 '15

Construction work on Twin Peaks tunnel, San Francisco. 11 Eng N 73:1037 My 27 '15

Contractor's methods and plant at the Kenderdell tunnel of the Pennsylvania R. R. Eng N 73:635-6 Ap 1 '15

Deep tunnel completed in unsound rock solidified by extraordinary grouting. 11 Eng Rec 72:417-19 O 2 '15

Details of record tunnelling at Rogers' Pass. Eng Rec 71:27-8 Ja 2 '15

Driving a five-mile tunnel through the Selkirks. 11 diags map Ry Age 57:1082-4 D 11 '14

Driving and lining carried on simultaneously at Snoqualmie tunnel saved timbering. R. W. Rae. diags Eng Rec 72:44-6 Jl 10 '15

Tunnels and tunneling—Continued

- Driving the Sheep Creek tunnel. diags Eng & Min J 98:893-8 O 17 '14; Same cond. Eng & Contr 43:152-4 F 17 '15
- Driving the tunnel for the Marseilles-Rhone canal. R. F. Wagner. diag Eng N 74:803-4 O 21 '15
- Earth tunnel for pipe sewer at Virginia, Minn. II Eng N 73:351 F 18 '15
- Economic comparison of European and American methods of driving tunnel heading. E. Lauchli. diags Eng & Contr 44:411-13 N 24 '15
- Grouting equipment for city tunnel, Catskill aqueduct. W. E. Spear. diags Eng N 73:884 My 6 '15
- Important realignment problem on the Pennsylvania. II map Ry Age 59:456-8 S 10 '15
- Largest tunnel in the world. E. L. Corthell. diags map Eng N 74:336-7 Ag 26 '15; Abstract. Eng & Min J 100:800 N 13 '15
- Methods and instruments used in making precise surface and underground surveys for the Canadian Northern Ry. tunnel, Montreal, Canada. J. L. Busfield. II diags plan Eng & Contr 42:383-6 O 21 '14
- Methods used in building the Rogers Pass tunnel. diags Eng N 74:920-3 N 11 '15; Excerpt. Eng & Min J 100:957-8 D 11 '15
- Mile-long highway tunnel in Pittsburgh, Penn. diags Eng N 74:300 Ag 12 '15
- Modern methods in railway tunnel construction. C. S. Churchill. diags Ry R 57:547-55 O 30 '15
- New American tunneling record at Rogers' Pass. Eng Rec 70:859 D 19 '14
- New methods of pneumatic tunneling aid safe and rapid completion of Passaic valley sewer contract. II diags Eng Rec 71:130-8 Ja 30 '15
- New York rapid transit railway extensions. F. Lavis. II diags Eng N 72:1206-10 D 17 '14
- New York subway tapped for new connections while carrying heavy traffic. II diags plan Eng Rec 72:255-7 Ag 28 '15
- Opening of the Mont d'Or tunnel. II map Engineer 119:505-6, 508 My 21 '15
- Piercing the Selkirk mountains for a five-mile tunnel. II map Eng Rec 70:604-6 D 5 '14; Same cond. Eng M 48:780-2 F '15
- Primer on explosives for metal miners and quarrymen. C. E. Munroe and C. Hall. diags pl U S Bur Mines Bul 80:72-93 '15
- Progress on Summit cut-off of the Lackawanna. II diags Ry Age 58:238-9 F 5 '15
- Railroad building under and over the streets of New York. II map Sci Am 113:96-7+ J1 31 '15
- Rapid tunnel driving under the bonus system. J. R. McFarland. Eng N 74:405-6 Ag 26 '15; Same. Eng & Min J 100:517-18 S 25 '15
- Roof shield used for driving railroad tunnel in soft earth, Point Defiance, Tacoma. II diags Eng Rec 71:272-3 F 27 '15; Same cond. Eng M 49:280-1 My '15
- Roosevelt drainage tunnel, Cripple Creek, Colorado. T. H. Sheldon. II map Eng & Min J 100:545-9 O 2 '15
- Rove tunnel on the canal from Marseilles to the Rhone. Bourgougnon. diags Eng & Contr 43:586-7 Je 16 '15; Abstract (Largest tunnel in the world) Eng M 49:759 Ag '15
- Sewer tunnel in clay driven with simple equipment in eight weeks. Eng Rec 71:181 F 6 '15
- Snoqualmie tunnel; C. M. & St. P. Ry. diags Eng N 73:346-9 F 18 '15
- Special features in the new intake tunnel at Milwaukee, Wis. L. G. Warren. diags Eng N 73:686-7 Ap 8 '15
- Speed of tunnel timbering increased by using erection outlookers. diags Eng N 73:543 Mr 18 '15
- Stockton street tunnel and Twin Peaks tunnel in San Francisco. A. J. Cleary. II map Eng N 73:314-17 F 18 '15
- Tunnel driven under inclined railway with thin earth cover. R. A. Riney. II diags Eng Rec 72:365-6 S 18 '15
- Tunnel driving record on Passaic valley sewer. Munic J 38:506 Ap 15 '15
- Tunnel, 400 feet below existing bore, replaces short section of damaged Catskill siphon. II diags Eng Rec 71:514-16 Ap 24 '15
- Tunnel streets at San Francisco. T. A. Church. Munic J 38:767-8 Je 3 '15
- Two-mile street railway tunnel at San Francisco. Eng Rec 71:47-8 Ja 9 '15
- Will pioneer bore weaken Rogers Pass tunnel? E. Lauchli. Eng Rec 71:308 Mr 6 '15
- See also: Blasting; Excavation; Mining engineering; Subways; Tunnel design; Tunnel lining; Tunnel shields; Tunnel ventilation
- Tunnels and tunneling, Subaqueous**
- Astoria-Bronx gas tunnel. J. F. Springer. II Munic J 39:649-50 O 28 '15
- Astoria tunnel under the East river for gas distribution in New York city. J. V. Davies. II map Am Gas Light J 103:225-30, 244-7+ O 11-18 '15
- Chelsea Creek tunnel for Boston water main. W. B. Conant. II diags Munic J 38:387-90 Mr 25 '15
- Cleveland west side water-supply tunnel. II diags plan Eng N 73:4-8 Ja 7 '15
- Construction of water works tunnels in the Metropolitan water district of Massachusetts. W. E. Foss. II diags map Eng & Contr 42:84-9, 129-31, 352-5, 451-3 J1 22, Ag 5, O 14, N 11 '14
- Detail and fabrication of Harlem river tubes. T. Duckworth. II diags Eng Soc W Pa 31:538-60; Discussion. 31:560-83 O '15
- Determination of stresses in and design of cast iron lining for subaqueous tunnels. F. A. N. Seurot. diags Eng & Contr 43:90-2 F 3 '15
- East river tunnel shields. II diags Eng N 74:952-5 N 11 '15
- Economic value of the Detroit river tunnel. Sci Am 113:422 N 13 '15
- Flooding and recovery of the Astoria tunnel. H. Carpenter. II diags Eng N 74:673-8, 736-41 O 7-14 '15
- Great gas tunnel under the East river. J. F. Springer. II Sci Am 113:280-1 O 30 '15
- Harlem river four-track subway tunnel. O. Hoff. II diags map Eng Soc W Pa 31:517-37; Discussion. 31:571-83 O '15
- Important terminal improvement; Detroit river tunnel. II Sci Am S 80:308 N 13 '15
- Laying a 6-ft. pipe tunnel across the Milwaukee river. II diags Eng N 73:522-4 Mr 18 '15
- New York rapid transit railway extensions. F. Lavis. II diags Eng N 72:1250-4 D 24 '14
- New York tunnel power plants. II plans Eng N 74:700-1 O 7 '15
- Piledriving destroys a tunnel by clay pressure. II Eng N 74:404-5 Ag 26 '15
- Seventy years of civil engineering. II Sci Am 112:529+ Je 5 '15
- Starting six tubes for two new East river subway crossings in New York. II diags Eng Rec 71:810-12 Je 26 '15
- Water-pipe tunnel, Metropolitan water-works. B. Lawrence. II diags Eng N 73:1116-21 Je 10 '15
- Turbines**
- Design of scroll cases and intakes for single-runner turbines analyzed. A. G. Hillberg. diags Eng Rec 72:413-15, 442-4 O 2-9 '15
- Design of turbine draft tubes analyzed. A. G. Hillberg. Eng Rec 72:604-7, 630-1 N 13-20 '15
- Developments in modern water turbine practice. H. Zoelly. II diags Power 42:698-702 N 18 '15
- Hydraulic turbines for Great Falls power company. II Eng Rec 71:138 Je 5 '15
- Hydraulic turbines; wheels and pumps at the Panama-Pacific exposition. H. J. Kennedy. II Sci Am S 80:124-6 Ag 21 '15
- Improved hydraulic governor. II Eng Rec 71:383-4 Mr 20 '15
- Largest hydraulic motor. II Sci Am 113:153 Ag 21 '15
- One governor controls two waterwheels. II Eng Rec 71:372-3 Mr 20 '15
- Pelton turbines and their governors: abstract. F. Fréail. diags Am Soc M E J 37:44-5, 118-15 Ja-F '15
- Ten per cent efficiency increase follows change from double to single-runner turbine. II diags Eng Rec 71:365-7 Mr 20 '15
- Turbines of the Cedars (Quebec) hydro-electric plant. II diag Eng N 73:611-13 Ap 1 '15
- Water turbine characteristics. G. H. Bancroft. Eng Rec 71:45-7 Ja 9 '15
- Water turbines on the Borgne river plant: abstract. F. Fréail. diag Am Soc M E J 37:44-5 Ja '15

Turbines—Continued

- Wicket gates the logical development for hydraulic turbine regulation. J. F. Moody. *diags Eng Rec* 72:858-60 S 18 '15
 World's largest low-head turbines in operation; Cedars Rapids development. *Eng Rec* 71:154 Ja 30 '15
See also Gas turbines; Steam turbines; Water wheels

Testing

- Arrangements for conducting tests on water turbines when installed. *diags Elec W* 66:253-4 J1 31 '15
 Cylinder gates increase turbine efficiency; Holyoke tests. A. G. Hillberg. *Eng Rec* 71:485 Ap 17 '15
 Diaphragm method for the measurement of water in open channels of uniform cross-section. C. R. Weldner. *biblog* *Eng N* 72:532-4 S 10 '14; *Excerpts. Eng N* 72:532-4 S 10 '14; *Eng & Contr* 42:414-15 O 28 '14
 Do cylinder gates increase turbine efficiency? H. B. Taylor. *Eng Rec* 71:690-1 My 29 '15
 Electrical methods of testing hydraulic turbines; abstract. A. Strickler. *Am Soc M E J* 37:286-8 My '15
 Means suggested for interpretation of water-turbine test data. L. F. Harza. *Eng Rec* 72:542-4 O 30 '15
 New flume needed for waterwheel tests; canvass of opinions. *Eng Rec* 71:379 Mr 20 '15
 Old wooden turbine tested. C. B. Stewart. *Eng N* 74:687-8 O 7 '15
 Proposed government testing flume for hydraulic turbines not needed. H. B. Taylor. *Eng Rec* 72:321-2 S 11 '15
 Salt solution test shows turbine efficiency of 93 per cent at Holtwood plant. *Eng Rec* 71:358-60 Mr 20 '15
 Stream gaging by titration; comparative tests of new chemical and standard mechanical methods of gaging stream flow. *diag plan Eng & Contr* 42:270-3 S 16 '14
 Tests of high-power high-speed water turbines. S. J. Zowski. *Eng Rec* 70:689-90 D 26 '14

Turbines, Gas. *See* Gas turbines

Turbines, Steam. *See* Steam turbines

Turbo-blowers. *See* Blowing engines

Turbo-generator sets. Swiss. *Eng Rec* 119:179-82, 204-6 F 19-26 '15

Turkey

Engineering prospects in Turkey. *Engineer* 119:371-2, 395-6 Ap 16-23 '15

Army

Military resources of Turkey. *Sci Am* 111:458 D 5 '14

Industries and resources

Minerals of Asiatic Turkey. *map Eng & Min J* 100:715-17 O 30 '15

Navy

Military resources of Turkey. *Sci Am* 111:458-9+ D 5 '14

Turning

- Adjustable and multi-cutting turning tools. F. H. Mayoh. *diags Mach* 21:302-3 D '14
 Amalgamated machinery operation turning machine for rapid work. *Iron Tr R* 57:895 N 4 '15
 Machine for rough turning shell blanks. *Iron Age* 95:1402 Je 24 '15
 Special turning machine. *Iron Tr R* 57:32 J1 1 '15
 Turning engine bolts. C. L. Dickert. *diags Ry Age (Mech ed)* 89:193-4 Ap '15
See also Lathes

Turntables

- Ball-bearing turntable with latch. *diags Eng & Min J* 99:577-8 Mr 27 '15
 Improved turntable for contractor's dump cars. *diag Eng N* 73:988 My 20 '15
 Turntable aids road contractor in solving hauling problem. *Eng Rec* 72:303 S 4 '15

Turpentine

Composition of wood turpentine. M. Adams. *J Ind & Eng Chem* 7:957-60 N '15

Contributions of the chemist to the naval stores industry. J. E. Teeple. *J Ind & Eng Chem* 7:931-2 N '15
Naval stores industry. A. W. Schorger and H. S. Betts. *diags* *Eng N* 72:532-4 S 10 '14; *Eng & Contr* 42:414-15 O 28 '14

Tweed

Making of Scotch tweeds. T. Welsh. *Textile World* 48:398-400, 501-3 Ja-F '15

Twilight sleep

Twilight sleep in the light of day. *Sci Am S* 79:112 F 13 '15

Twine

Electricity in twine and rope mills. *Eng Rec* 71:485 Ap 17 '15
Finishing jute twine. *diag Textile World* 48:481-3 Ja '15

Two-family houses. *See* Duplex houses

Type

Appropriateness. J. L. Frazier. *Eng N* 72:532-4 S 10 '14
Type-designs in imitation of engraved work. J. L. Frazier. *Inland Ptr* 55:558-4 Je '15
See also Printing; Typesetting

Typesetting

Correct spacing of body-matter. J. L. Frazier. *Inland Ptr* 55:355-8 Je '15
Use and misuse of special characters and letters. D. H. Howard. *Inland Ptr* 56:40-2 O '15
See also Advertisements; Printing

Job work

Contour. J. L. Frazier. *Inland Ptr* 56:209-12 N '15
Distribution of white space. J. L. Frazier. *Inland Ptr* 55:855-8 D '15
Forced arrangements. J. L. Frazier. *Inland Ptr* 54:806-7 Mr '15
Idea for the job. F. F. Turner. *Inland Ptr* 55:465-7 J1 '15
Job composition. J. L. Frazier. *See* monthly numbers of *Inland printer*
Lesson in spacing. J. L. Frazier. *Inland Ptr* 56:363-4 D '15
Make it readable. J. L. Frazier. *Inland Ptr* 56:69-70, 213-14 O-N '15
Order of display. J. L. Frazier. *Inland Ptr* 54:517-19 Ja '15
Points on paneling. J. L. Frazier. *Inland Ptr* 55:645-6 Ag '15
Running-head as an embellishment. J. L. Frazier. *Inland Ptr* 55:785-7 S '15
Styles of typography that have been discarded—and why. G. P. Farrar. *Inland Ptr* 55:616-20 Ag '15

Typesetting machines

Cost of machine composition. B. Daniels. *Inland Ptr* 54:549-50 Ja '15
Modern methods of composing type. *Sci Am* S 80:321, 324-6 N 20 '15
One-man typesetting and composing machine. *Inland Ptr* 54:512 Ja '15
See also Linotype

Typewriters

Developing a typewriter. J. Dangerfield. *Mach* 21:579-80 Mr '15
Largest typewriter in the world. *Sci Am* 112:503 F 27 '15
Seventy years of inventions. *Sci Am* 112:512, 514 Je 5 '15

Typhoid fever

Artificial immunity against typhoid fever. A. M. Jungmann. *Sci Am* 113:184-5 Ag 28 '15
Biochemical and engineering aspects of sanitary water supply. G. W. Fuller. *J Fr Inst* 180:43-61 J1 '15
Effect of filtration and sterilization on typhoid fever in Philadelphia. F. D. West. *Munic J* 39:111-12 J1 22 '15
Model of the typhus carrier. *Sci Am* 112:497 My 29 '15
Relations between the water supply and typhoid fever in Washington. D. C. J. Gaub. *Am Water Works Assn J* 1:727-33 D '14
Typhoid carriers. *Sci Am* 112:428 My 8 '15
Water-borne typhoid fever epidemic at Healdsburg. Cal. W. A. Sawyer. *Eng & Contr* 44:179-80 S 8 '15

Typhoid fever—Continued.

- Water borne typhoid in Sacramento, Cal.—interesting application of liquid chlorine. N. E. Williamson. Eng & Contr 44:314 O 20 '15
 Water-supplies and health in Massachusetts. A. L. Gammage. Eng N 74:1077-9 D 2 '15
 Water-supply and typhoid fever at Cumberland, Md. A. G. Fowler and M. J. Colton. II Eng N 73:969-70 My 20 '15

Typhus fever

- Germ of typhus fever. Sci Am 112:591 Je 13 '15
 Typhus fever. Sci Am S 80:28 Jl 10 '15

Typography. See Printing**Tyrannosaurus**

- Tyrannosaurus, a cretaceous carnivorous dinosaur. B. Brown. II Sci Am 113:322-3 O 9 '15

Tyrosine

- Researches on hydantoins; a new synthesis of o-tyrosine. T. B. Johnson and W. M. Scott. Am Chem Soc J 87:1246-56 Ag '15

U

Ultra-violet rays

- Development of ultra-violet water disinfection. II diag Eng N 74:634-6 S 30 '15
 Effect of ultra-violet rays on the eye. Sci Am 113:823 O 9 '15
 Eff. on the eye of ultra-violet light. W. E. Burge. II diag Elec W 65:812-14 Ap 10 '15; Abstract. Sci Am S 80:345 N 27 '15
 Mode of action of ultra-violet radiation in injuring the refracting media of the eye. W. E. Burge. J Fr Inst 180:477-8 O '15
 More mysteries of ultra-violet light. L. K. Hirschberg. Sci Am 112:312-13 Ap 3 '15
 Production and application of ultra-violet rays, particularly for water purification. M. von Recklinghausen. II diag Assn Eng Soc J 54:101-9 Mr '15
 Purification of water by the ultra-violet rays. M. von Recklinghausen. II diag Am Water Works Assn J 1:565-84 S '14; Same. Sci Am S 79:10-12 Ja 2 '15; Discussion. Am Water Works Assn J 1:585-8 S '14
 Sterilization of water by ultra-violet rays of the mercury-vapor quartz lamp. M. von Recklinghausen. diag Am Inst E E Pro 33:1049-62 Je '14; Same cond. Eng M 47:756-3 Ag '14; Abstract and discussion. Elec R & W Elec N 65:33-4 Jl 4 '14; Discussion. Am Inst E E Pro 33:1906-12 D '14
 Ultra-violet rays and their application for the sterilization of water. M. von Recklinghausen. II diag J Fr Inst 178:681-704 D '14
 Ultra-violet rays from the oscillating spark. Elec R & W Elec N 65:1055-6 Je 5 '15

Ultramicroscope. See Microscope and microscopy**Ultraudion. See Audion****Una-flow engines. See Steam engines****Underfeed stokers. See Stokers, Mechanical****Underground roads. See Subways****Underground surveys**

- Method and cost of making a relocation survey of underground pipe lines. O. E. Carr. plans Eng & Contr 42:153-5 Ag 12 '14; Same cond. (Underground survey of Cincinnati). Eng Rec 71:38-40 Ja 9 '15

Underground utility galleries. See Subways (conduits)**Underpinning. See Shoring and underpinning****Underwear**

- Finishing knit underwear. Textile World 49:449-50, 541-4; 50:103-4 Jl-Ag, O '15
 Merchandising of hosiery and underwear. C. C. Parlin. Textile World 49:sup265+ My '15
 Production and costs in an underwear mill. Textile World 49:358-9 Je '15
 Standard sizes for two-piece underwear. Textile World 48:610-11 Mr '15
 See also Hosiery; Union suits

Unemployed

- Dayton's effort at solving the problem of the unemployed. H. C. Wight. Munic Eng 48:198-9 Mr '15

Economic relation between the supply of skilled and intelligent workmen and unemployment of the masses. T. N. Carver. Am Soc M E J 37:279-80 My '15

- Irregular employment, cost and causes. H. S. Dennison. Am Soc M E J 37:280-1 My '15
 Report on winter unemployment. J. P. Newell, E. G. Hopson and others. Assn Eng Soc J 54:258-74 Je '15

Unemployment in twelve cities in the United States. Ry R 57:599 N 6 '15**Unemployment on railroads. Ry Age 58:214-15 F 5 '15****Unemployment resulting from railroad depression. Ry Age 58:31-2 Ja 1 '15****See also Labor exchanges****Unexploded shells. See Shells, Unexploded****Unfair competition. See Competition, Unfair****Unicycles**

- Gyroscopic, motor-driven unicycle. Sci Am 111:490 D 12 '14

Uniflow engines. See Steam engines**Uniform boiler law society, American. See American uniform boiler law society****Union label**

- Union label unnecessary in municipal contracts. Am Ind 15:27 Ap '15

Union Pacific railroad

- Statistics for 1914. map Ry Age 57:1169-71 D 25 '14

- Wireless telegraph and wireless telephone on the Union Pacific R. R. II Ry R 55:587-91 N 14 '14; Abstract. Eng M 48:595-3 Ja '15

Union suits

- Improved union suit. diag Textile World 48:422-3; 49:273-4, 356-7 Ja, My-Je '15

United shoe machinery co.

- Decision in the United shoe machinery case. Sci Am 112:323+ Ap 3 '15

- Patents involved in shoe machinery decision. Elec W 65:825-6 Mr 27 '15

United States**Agriculture, Department of**

- Agricultural instruction for the millions. Sci Am 113:461 N 27 '15

Army

- Medical reserve corps United States army. Sci Am S 80:235 O 9 '15

- Troops to guard the coast. T. Blodgett. Sci Am 112:309 Ap 3 '15

- United States an undefended treasure land. II Sci Am 112:118-20, 158-9+, 178-9, 198-9+ F 6-27 '15

- War capacity of United States railways. R. Grimshaw. Sci Am 112:417+ My 1 '15

- See also United States—Defenses; United States—Militia

Board of mediation and conciliation

- Annual report. Ry Age 58:192-4 Ja 29 '15

- Work of the Board of mediation and conciliation. Ry Age 58:175 Ja 29 '15

- Year's work of the Federal board of mediation and conciliation. Ry R 55:774 D 26 '14

Cabinet

- Railroad crisis: a way out [a railroad department with a cabinet officer]. R. Morris. Ry Age 58:748-4 Ap 2 '15

Census

- Census bureau no inquisition. Iron Age 95:823 Ap 8 '15

Coast and geodetic survey

- Address to graduating class, Stevens institute of technology. O. H. Tittmann. Stevens Ind 32:233-45 Jl '15

- Coast and geodetic survey work in 1915. Eng N 73:988-9 My 20 '15

- New ships needed for the Coast and geodetic survey. Int Marine Eng 20:2-3 Ja '15

Commerce

- American opportunity for Russian business. D. L. Hough. map Iron Age 95:616-17 Mr 18 '15

- Balance of trade in chemicals between the United States and Germany in 1913. J Ind & Eng Chem 6:1034-5 D '14

United States—Commerce—Continued.

Business questions considered by the Chamber of commerce of the United States. Iron Age 95:354-5 F 11 '15

Foreign and domestic commerce and business generally. J. A. Farrell. Eng Soc W Pa 31: 223-8 Mr '15

How Uncle Sam helps commerce. A. H. Baldwin. Iron Tr R 55:1281-2 D 31 '14

Opportunity for the engineer in China. F. A. Foster. Am Soc M E J 37:846 N '15

Pan-American trade—Argentina. A. M. Boggs. maps Am Ind 16:20-3 O '15

President's message: extracts. Ry R 55:718-19 D 12 '14

Why optimism? G. O. Smith. Colliery 35:392 F '15

See also Chamber of commerce of the United States of America; Chemical industries; European war—Commercial and financial aspects; Export trade; Interstate commerce; Interstate commerce commission; Panama canal—Commercial aspects; Railroads—United States; Shipping; Tariff—United States; United States—Commercial policy; United States—Federal trade commission; United States—Industries and resources; Waterways

Commerce, Department of
Secretary Redfield and the textile industry. Textile World 43:286a-286c D '14

Commercial policy

Aniline dye situation. I. F. Stone. Met & Chem Eng 13:663-71 O 1 '15

Existing obstacles to the extension of our trade with Central and South America. M. Coster. Elec W 65:1158-9 My 8 '15

For America first. Iron Tr R 56:21-30 Ja 7 '15

See also Tariff—United States; United States—Federal trade commission

Commission on industrial relations

Causes of industrial unrest: summary of the preliminary report. Am Ind 15:14 Ja '15

Commission on industrial relations sits in Washington. Ry R 56:616-18 My 8 '15

Daniel Guggenheim's testimony. Eng & Min J 99:245-7 Ja 30 '15

Federal commission on industrial relations. W. Drew. Am Ind 15:17-18 Je '15

Report. Ry Age 59:483 S 3 '15

Report. W. Drew. Am Ind 15:15-17 Ja '15

Report of progress. Iron Tr R 55:1100-1 D 10 '14

Congress

Rural control of Congress. J. A. Emery. Am Ind 15:14-15 F '15

Defenses

Actual and theoretical ranges of the United States coast defense guns. Sci Am 112:472 My 22 '15

Coming program for army and navy. Iron Age 96:578-9 S 9 '15

Country's railroads and national defense: with discussion. G. D. Snyder. Ry Age 59:1017-18 N 26 '15; Abstract. Ry R 57:685-6 N 27 '15

Government plans large outlays for defense. Iron Age 96:249-50 J1 29 '15

National factor of safety, giving engineers instruction in military matters. W. R. King. Eng Rec 71:183 Ja 30 '15

National security commission. Sci Am 111:486 D 12 '14

Opposition to government defense plans. Iron Age 96:340-1 Ag 5 '15

Organizing industry for national defense. Eng Rec 72:589 N 13 '15

Our unpreparedness against military devastation. H. A. W. Wood. Sci Am S 80:148-9 S 4 '15

Peace insurance. Sci Am 112:212 Mr 6 '15

Peril of our military unpreparedness. Sci Am 113:74 J1 24 '15

President on national defense. Sci Am 113:442 N 20 '15

Proposed expenditures for five years for improving national defenses. Iron Age 96:1024 O 28 '15

Specialized experience of engineers and contractors vital to country's defense. G. Perrine. Il Eng Rec 72:594-6 N 13 '15

United States an undefended treasure land. Il Sci Am 112:118-20, 158-9+, 173-9, 193-9+ F 6-27 '15

See also United States—Army; United States—Militia; United States—Navy

Engineer corps

Examinations for commissions, corps of engineers. Eng N 74:513-14 S 9 '15

Engraving and printing, Bureau of

Comfort for workers in Washington's government buildings. D. A. Willey. Il Sci Am S 78:373-4 D 12 '14

Electric wiring in a great government plant. E. C. Stanton. Il plan Elec W 66:686-8, 744-6 S 25-O 2 '15

Federal trade commission

Clayton act—and other things. W. H. Taft. Am Ind 15:34-7 Je '15

Federal trade commission. J. E. Davies. Elec W 65:370-1 F 6 '15

Federal trade commission and the Clayton law. R. C. Butler and C. Lynde. Ry R 56: 442-3 Mr 27 '15

Federal trade commission at work. Am Ind 15: 13-16 J1 '15

Federal trade commission extending export inquiry. Elec W 66:1054 N 6 '15; Ry R 57:602 N 6 '15

Federal trade commission investigates the foreign market for American electrical goods. W. Fawcett. Elec R & W Elec'n 67:292-4 Ag 14 '15

Federal trade commission rules of practice. Am Ind 15:16-17 J1 '15

Federal trade commission to continue work of Bureau of corporations and to consider export combinations. Iron Age 95:649 Mr 13 '15

Federal trade commission to help American business. Elec W 66:153-4 J1 17 '15

Federal trade commissioners' power to invade large and small business houses in search of evidence. E. J. Buckley. Elec R & W Elec'n 66:525 Mr 20 '15; Same. Metal Work 83:169 Ja 22 '15

Federal trade relations commission. J. A. Emery. Am Ind 15:19-21 Je '15

History of the commission; its organization, powers and duties. J. A. Emery. Am Ind 15:7-10 Ap '15

Members of the Federal trade commission. Elec W 65:566 F 27 '15

Outline of powers and procedure. J. E. Davies. Am Ind 15:24-5 Mr '15

Progress of Federal trade commission work. Elec W 65:827 Mr 27 '15

Trade commission not to harass business. Iron Age 95:702-3 Mr 25 '15

What business asks of Trade commission. Iron Age 95:1293-4 Je 10 '15

What of the Federal trade commission act: steel manufacturers write of its possibilities. Iron Age 95:26-9 Ja 7 '15

What will trade commission do? S. E. Eldridge. Iron Tr R 56:388c F 18 '15

Foreign and domestic commerce, Bureau of Dyestuffs and the Department of commerce. Textile World 50:147-9 N '15

Geological survey

Competition of the U. S. geological survey with private engineering practice. H. C. Mitchell. Eng N 73:902-3 My 6 '15

Competition of the U. S. government with private engineers. H. C. Mitchell; G. O. Smith. Eng N 73:789-90 Ap 23 '15

Propriety of government surveys for local use. W. N. Brown. Eng Rec 72:85-6 J1 17 '15

U. S. geological survey and the topographical survey of Cincinnati. H. S. Morse. Eng N 73:902 My 6 '15

Work of the U. S. Geological survey, 1913-14. Eng Rec 70:650 D 12 '14

Government printing office

Power plant of the government printing office. D. H. Tuck. diag plan Power 41:576-80 Ap 27 '15

United States—Continued

Industries and resources

- America and the import problem. R. V. Sawhill. Iron Tr R 56:2-3 Ja 7 '15
- Aspects of some chemical industries, in the United States, today. E. Gudeman. J Ind & Eng Chem 7:151-5 F '15
- Contributions of the chemist to American industries; symposium. J Ind & Eng Chem 7:273-304 Ap '15
- Contributions of the chemist to the industrial development of the United States—a record of achievement. B. C. Hesse. J Ind & Eng Chem 7:293-304 Ap '15; Same. Sci Am S 79:210-11, 234-5 Ap 3-10 '15; Abstract. Met & Chem Eng 13:287-8 My '15; Abstract and discussion. Textile World 49:53-5, 74-5+ Ap '15
- Contributions of the chemist to various American industries; symposium. Met & Chem Eng 13:283 My '15
- Developing our resources. G. O. Smith. Metal Work 83:533 Ap 9 '15
- Distribution of industrial opportunities. G. O. Smith. J Ind & Eng Chem 7:67-9 Ja '15
- Doing without Europe. Sci Am 112:128, 157+, 176, 223 F 6-20, Mr 6 '15
- Domestic supply of wool and dyestuffs. C. E. Wry. Textile World 49:95-6 Ap '15
- Effect of the war on American industries. E. E. Pratt. Sci Am 113:203, 230-1 S 4-11 '15
- Features of engineering in the West. H. F. Stratton. Il maps Sibley J 29:139-49 F '15
- Government co-operation with our industries. Sci Am 112:99 Ja 30 '15
- How to break up a bad habit; what industrial independence really means. D. Wells. Iron Tr R 56:429 F 25 '15
- Industrial resources and opportunities of the Northwest. H. K. Benson. Met & Chem Eng 13:589-92 S 15 '15; Same. J Ind & Eng Chem 7:981-4 N '15
- Organizing industry for national defense. Eng Rec 72:589 N 13 '15
- Resources and possibilities of chemical industry in the Southwest. E. Baruch. Met & Chem Eng 13:604-8 S 15 '15
- Status of the chemical industries in the United States at the end of 1915. I. F. Stone. J Ind & Eng Chem 7:991-3 N '15; Same. Sci Am S 80:286-7 O 30 '15
- War orders and American industry. Eng M 49:481-3 Jl '15
- See also* Agriculture—United States; Chemical industries; Dye industry; Electric industries—United States; Forests and forestry—United States; Mines and mineral resources—United States; United States—Commerce; Water power—United States; also names of industries

Insular possessions

- American Samoa. Sci Am 112:81 Ja 23 '15
- See also* Hawaiian islands; Philippine islands

Labor, Department of

- Department of labor to find workmen for manufacturers. Iron Age 95: 223 Ja 21 '15

Lighthouse service

- See* Lighthouse service (United States)

Manufactures

- Clearing house for manufacturers. G. H. Manlove. Iron Tr R 56:20+ Ja 7 '15
- For America first. Iron Tr R 56:21-30 Ja 7 '15

Militia

- Mobilizing the engineer companies of the militia. D. A. Tomlinson. Il Eng Rec 72:314-15 S 11 '15
- Nationalization of the national guard. E. W. Duke. Il Sci Am 113:394-5+ N 6 '15
- Plan for increasing our military strength. J. R. Charlesworth. Sci Am 113:43 Jl 10 '15
- Volunteer engineer officers. Eng & Min J 100:796-7 N 13 '15
- What the national guard needs. W. W. Wright. Sci Am 112:492-3 My 29 '15

Mines, Bureau of

- 4th annual report of the director of the U. S. Bureau of mines. M. L. Hamlin. J Ind & Eng Chem 7:69-70 Ja '15
- Government publicity methods. W. O. Snelling. Met & Chem Eng 13:272-3 My '15
- Report of the Bureau of mines. Sci Am S 79:35 Ja 16 '15
- United States mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 94:pt 2, 916-30 '15

Naval consulting board

- Bureau of invention and development. Sci Am 113:74 Jl 24 '15
- Developing naval inventions by a government bureau. Eng N 74:179-80 Jl 22 '15
- First meeting and first recommendation. Met & Chem Eng 13:708-9 O 15 '15
- First meeting, Washington, D. C., Oct. 6. Am Inst Min E Bul 108:xliv-xiv D '15
- First meeting, Washington, D. C., Oct. 6, 1915. Am Soc M E J 37:xxiii-iv N '15
- 2d meeting, New York city, Nov. 4. Am Soc M E J 37:xvii-xviii D '15
- Membership of the Naval advisory board of inventions. Sci Am 113:276+ S 25 '15
- Naval advisory board. Elec W 66:620-1 S 18 '15
- Naval advisory board. T: Robins. Elec W 66:334-5 Ag 14 '15
- Naval advisory board may be enlarged. Elec W 66:313 Ag 7 '15
- Naval advisory board of inventions. pers Sci Am 113:301+, 326+ O 2-9 '15
- Naval consulting board personnel. Eng M 50:199-221 N '15
- Naval inventions board. Eng N 74:234-5 Jl 29 '15
- Navy advisory board of inventors. Elec W 66:173-4 Jl 24 '15
- Part of the civilian engineer in naval preparedness. F. J. Sprague. Eng M 50:169-72 N '15
- U. S. naval advisory board. Eng N 74:573-4 S 16 '15
- Well-known engineers named on Naval advisory board. Eng Rec 72:368 S 18 '15

Navy

- Analysis of our naval standing. G. von L. Meyer. Il Sci Am 112:339-40, 359-60 Ap 10-17 '15
- Battle-cruiser. Sci Am 112:304 Ap 3 '15
- Building program: quoted from reports of Secretary Daniels and chiefs of bureaus. Engineer 119:311-12 Mr 28 '15
- Efficiency in conduct of office business; new methods in a naval bureau. Ry R 57:472-4 O 9 '15
- Engineering in the navy. W. L. R. Emmet. Gen Elec R 18:1097-8 D '15
- For peace and prosperity with a fighting navy to protect them. J. R. Dunlap. Eng M 50:161-8 N '15
- How the navy department is organized. Eng M 50:195-8 N '15
- Laboratory—not a navy yard. Sci Am 113:354 O 23 '15
- Laboratory's the thing. Sci Am 113:90 Jl 31 '15
- Naval research laboratory. F. J. Sprague. Sci Am 113:397 N 6 '15
- Naval review at New York. Sci Am 112:473 My 22 '15
- Navy for defense. Sci Am 113:4 Jl 3 '15
- Navy—our first line of defense. Il Sci Am 112:121-3; 113:266 F 6, S 25 '15
- Navy's most pressing need. Sci Am 113:38 Jl 10 '15
- Need of an enrolled naval reserve. Int Marine Eng 20:317-18 Jl '15
- Old navy and the new. W. M. McFarland. Int Marine Eng 20:174 Ap '15
- Organization of an engineering reserve for the navy. A. C. Meyers. Int Marine Eng 20:464 O '15
- Our naval development as related to national defense. J. R. Edwards. Eng M 50:173-94 N '15
- Plan for methodical increase of the navy. W: B. Chaifant. Sci Am 113:43 Jl 10 '15
- Rehabilitating the United States navy. Sci Am 113:374 O 30 '15
- Ships and navy for the Americas. W: L. Saunders. Eng M 50:172a-172d N '15

United States—Navy—Continued

- Standard marine electrical installations. H. A. Hornor. *Il diags Am Inst E E Pro* 34:1513-48 Ag '15
 Target practice in our navy. *Sci Am* 113:58 JI 17 '15
 To the Hon. Josephus Daniels, secretary of the navy. *Sci Am* 112:448 My '15
 Valor of ignorance; Mr. Kitchin's comparison of American and German navies. *Sci Am* 113:482 D 4 '15
 We should build battle-cruisers. *Sci Am* 113:106 Ag 7 '15

See also United States—Defenses; United States—Naval consulting board

Patent office

- Big handicap to industry. L. W. Moffett. *Il Iron Tr R* 56:557-60 Mr 18 '15
 Evil of divided applications in the Patent office. F. Kelper. *Sci Am* 112:139 F 6 '15
 Needed changes in the patent system. Met & Chem Eng 13:468-9 Ag '15
 Patent office and invention since 1845. W. I. Wyman. *Sci Am* 112:533-4+ Je 5 '15
 Report of the commissioner of patents. *Sci Am* 112:305+ F 27 '15
 Rules of practice of the United States Patent office. M. Tibbetts. *Sci Am* 113:467 N 27 '15
 Suggestions regarding patent office practice. J. F. Robb. *Sci Am* 113:397 N 6 '15
 Work and needs of the United States Patent office. T. Ewing. *Sci Am* 111:491 D 12 '14

See also Patent laws and legislation

Politics and government

- How Uncle Sam helps commerce. A. H. Baldwin. *Iron Tr R* 55:1231-2 D 31 '14

- Printing and engraving, Bureau of
 New building for the Bureau of engraving and printing. *Il diags Arch & Bldg* 46:463-70 D '14

Public health service

- U. S. public health service. H. P. Letton. *Munic J* 38:220 F 18 '15

Public lands

See Forest reserves; Public lands

Public roads, Office of

- Reorganization of the U. S. Office of public roads. Good Roads n s 9:144 Ap 3 '15

Purchasing

- How to sell tools to the government. L. W. Moffett. *Il Iron Tr R* 56:1101-5 Je 3 '15
 Purchasing supplies for the Panama canal. F. C. Boggs. *Iron Age* 96:1180-2, 1226-7 N 18-25 '15

Standards, Bureau of

- Fees for electric, magnetic, and photometric testing. U S Bur Stand Circ 6:1-27 '14
 National Bureau of standards and standards for public utilities. H. T. Wade. *Eng M* 49:240-51 My '15
 Public utilities work of the Bureau of standards. *Elec W* 64:1187-8 D 19 '14
 Recent researches in electricity at the Bureau of standards. E. B. Rosa. *Il plan J Fr Inst* 180:589-59 N '15
 Relation of standards to the development of engineering. W. S. Stratton. *Am Soc M E J* 37:38-40 Ja '15
 Report of the director of the Bureau of standards; excerpts. *Am Gas Light J* 102:108-9 F 15 '15; Same. *J Fr Inst* 179:216-23 F '15
 U. S. Bureau of standards test weight car no. 2. *Il Ry R* 57:483-4 O 16 '15
 What the National bureau of standards is doing. E. B. Rosa. *Elec W* 66:527 S 4 '15

State department

- Handling correspondence at the United States Department of state. W. Fawcett. *Il Inland Ptr* 56:109-12 O '15

- United States smelting, refining & mining co. Report for 1914. *Eng & Min J* 99:823 My 8 '15

- United States steel corporation
 Corporation exhibit at Frisco; model mines and steel plants. E. C. Kreutzberg. *Il Iron Tr R* 56:332-3+ F 11 '15

- Corporation wins forty-six awards. *Iron Tr R* 57:449 S 2 '15
 Decision in the steel corporation case. *Eng & Min J* 99:1046 Je 12 '15
 Exhibit of the United States steel corporation at the Panama-Pacific exposition, San Francisco; views. *Iron Tr R* 56:682a-682d Ap 1 '15
 Films and models attract interest in exhibit at Panama-Pacific international exposition. *Il Iron Tr R* 57:402-3 Ag 26 '15
 Full text of decision in the United States district court for the district of New Jersey. *Iron Tr R* 56:1171-1218 Je 10 '15
 1914 report. *Iron Age* 95:679-81 Mr 25 '15
 Report covering 1914. *Eng & Min J* 99:584-5 Mr 27 '15
 Some features of the United States steel corporation's report for 1914. *Eng & Contr* 43:329-30 Ap 14 '15
 Steel corporation at Panama-Pacific exposition. *Colliery* 35:389-90 F '15
 Steel corporation wins government's dissolution suit. *Ry R* 56:769-70 Je 5 '15
 United States steel corporation exhibit at the Panama-Pacific exposition. *Iron Age* 94:1425-6 D 17 '14
 United States steel corporation wins its suit. *Iron Age* 95:1299-1301+ Je 10 '15

- United typothetae and Franklin clubs of America
 Digest of the proceedings of the twenty-ninth annual convention. *Inland Ptr* 56:229-32 N '15

Units

- Photometric units. P. G. Nutting. *Elec W* 65:332-3, 845 F 6, Mr 13 '15

- Proposed unit of brightness. *Elec W* 65:715 Mr 20 '15

- Relation of the horse-power to the kilowatt. *Sci Am S* 79:162-3 Mr 13 '15

- Unit of brightness. H. E. Ives. *Elec W* 65:460 F 20 '15

See also Horsepower; Weights and measures

Universal City, California

- Strangest city in the world. *Il Sci Am* 112:385 Ap 17 '15

Universal joint. See Joints**University extension**

- Methods of instruction in engineering extension; with discussion. K. G. Smith. *W Soc E J* 20:266-86 Mr '15

Unloading. See Loading and unloading

- Unseparable matter in greases. E. Twitchell. *J Ind & Eng Chem* 7:217-18 Mr '15

Uranium

- Estimation of uranium and phosphorus. H. D. Newton and J. L. Hughes. *Am Chem Soc J* 37:1711-13 JI '15

- Radium: uranium ratio in carnotites. S. C. Lind and C. F. Whittemore. *diags Am Chem Soc J* 36:2066-82 O '14

- Radium-uranium ratio in carnotites. S. C. Lind and C. F. Whittemore. *Il diags U S Bur Mines Tech Pa* 88:1-28 '15

Urazoles

- On 1-phenyl-4,5-dihydro-5-oxy-3-triazolylsulfonic acid and 1-phenyl-4,5-dihydro-5-oxy-3-triazolylmethylsulfone. E. W. Esslinger and S. F. Acree. *Am Chem Soc J* 37:183-9 Ja '15

Urea

- Comparative behavior of thiourea and urea towards acetic anhydride. E. F. Kohmann. *Am Chem Soc J* 37:2180-3 S '15

Urease

- Retention of activity by urease and by oxidase after exposure to the temperature of liquid air. J. S. Hepburn and C. B. Bazzoni. *bibliog J Fr Inst* 180:603-5 N '15

- Studies on enzyme action; some experiments with castor bean urease. K. G. Falk and K. Sugitara. *Am Chem Soc J* 36:2166-70 O '14

Urinals

- Local venting of plumbing fixtures. J. Graham. *diags Dom Eng* 71:152-3 My 8 '15

Urine

- Observations of the excretion of creatinine by women. M. Hull. *Am Chem Soc J* 36:2146-51 O '14

Urine—Continued.

- Urined, the cause of the characteristic odor of urine. W: M. Dehn and F. A. Hartman. *Am Chem Soc J* 36:2136-46 O '14
- Volatile substances of urine. W: M. Dehn and F. A. Hartman. *Am Chem Soc J* 36:2118-36 O '14

Analysis

- Nephelometric estimation of purine bases, including uric acid, in urine and blood. S. S. Graves and P. A. Kober. *Am Chem Soc J* 37:2480-47 O '15

Urined

- Urined, the cause of the characteristic odor of urine. W: M. Dehn and F. A. Hartman. *Am Chem Soc J* 36:2136-46 O '14

Uruguay**Economic conditions**

- Financial developments in South American countries. W: H. Lough. *U S Bur For & Dom Com* 103:39-42 '15
- Uruguayan finance. *Am Ind* 16:42-3 N '15

Industries and resources

- Government electric power and telephone system in Uruguay. *Elec R & W Elec'n* 67:31 J1 3 '15

See also Mines and mineral resources—Uruguay

Utah

See also Geology—Utah; Mines and mineral resources—Utah

Capitol

- Utah state capitol. *Il Arch & Bldg* 47:324-30 S '15

Industries and resources

- Disseminated copper ores of Bingham Canyon, Utah. J. J. Beeson. *Il diagrs Am Inst Min E Bul* 107:2191-236 N '15

Utah copper co., Bingham, Utah

- Report for 1914. *Eng & Min J* 99:324-5 My 8 '15
- Report for the last quarter of 1914. *Eng & Min J* 99:408 F 27 '15

Utilities bureau

- Philadelphia valuation conference—some editorial views. *Eng Rec* 72:630-1 N 20 '15
- Valuation conference, Philadelphia, Nov. 10-12, 1915. *Eng N* 74:1002-3 N 18 '15; *Elec Ry J* 46:990-5, 1031-4 N 18-20 '15; *Elec R & W Elec'n* 67:939-41 N 20 '15; *Elec W* 66:1125-9 N 20 '15; *Eng Rec* 72:643-5 N 20 '15; *Munic J* 39:788-9 N 18 '15

Utilities indemnity exchange

- Reciprocal liability insurance for utilities and other electrical interests. *Elec R & W Elec'n* 66:1055 Je 5 '15

Utility galleries. See Subways (conduits)**V****Vaccination**

- Artificial immunity against typhoid fever. A. M. Jungmann. *Il Sci Am* 113:184-5 Ag 28 '15
- Vaccine virus not the cause of tetanus. *Sci Am* 80:155 S 4 '15

Vacuum

- Condensers for evaporating apparatus. E. W. Kerr. *diagrs Met & Chem Eng* 13:551-7 S 1 '15
- Effect of vacuum in steam turbines. G. G. Stoney. *Engineer* 118:521-3 N 27 '14; Same cond. *Sci Am* 8 79:69 Ja 30 '15; Same cond. *Power* 41:312-16 Mr 2 '15; Discussion. *Engineer* 118:502-3 N 27 '14
- Getting the proper vacuum in summer. J. Wilmore. *diagrs Elec W* 66:358-63 Ag 14 '15
- Handy conversion table for low pressures. E. H. Peterson. *Power* 42:333 S 14 '15
- High vacuums with surface condenser. *Il Power* 42:338-9 S 7 '15
- Method of lifting oil for a gravity-feed system by use of condenser vacuum. A. Kuylenstierna. *diagrs Elec W* 66:1149 N 20 '15
- Most economical vacuum for turbines. W. H. Herschel. *Power* 41:744-7 Je 1 '15

Popular misconceptions concerning condensers.

- F. R. Low. *Power* 42:16-17 J1 6 '15
- Vacuum wrecks pipe line. *Il Metal Work* 84:217 Ag 13 '15
- Vacuum cleaning**
- Electrically driven vacuum sheet-cleaner for cylinder presses. *Il Elec R & W Elec'n* 66:176 Ja 23 '15
- Hotpoint electric vacuum cleaner. *Il Elec R & W Elec'n* 67:488 S 11 '15
- Perry aspirator for vacuum cleaning. *Il Dom Eng* 72:183 Ag 7 '15
- Use of the vacuum system for cleaning cars in San Francisco. F. W. Allen. *Il Elec Ry J* 46:516-17 S 18 '15
- Vacuum cleaner with adjustable nozzle. *Il Elec W* 66:994 O 30 '15
- Vacuum cleaning cars. E. J. Haines. *Il Elec Ry J* 46:323 Ag 21 '15
- Vacuum cleaning test in Hartford school building. *plan Heat & Ven* 12:61 Ag '15

Vacuum pans

- Classifications, principles, tests. E. W. Kerr, J. F. Gunther, and W. A. Rolston. *diagrs Met & Chem Eng* 13:485-92 Ag '15

Vacuum pumps

- Combined air compressor and vacuum pump. *Il diagrs Engineer* 119:143 F 5 '15
- Electrically operated vacuum pump by the Ingersoll-Rand co. *Il Elec W* 66:938 O 23 '15; *Elec R & W Elec'n* 67:777 O 23 '15; *Iron Age* 96:832 O 14 '15; *Met & Chem Eng* 13:769-70 O 15 '15; *Power* 42:711-12 N 23 '15; *Ry Age (Mech ed)* 89:594 N '15
- Electrically operated vacuum pump by the May-Nelson mfg. co. *Il diag Elec W* 66:1109-10 N 13 '15; *Elec R & W Elec'n* 67:1035 D 4 '15
- Unity cylinder ratio for dry-vacuum pumps. R. S. Howard. *Power* 42:327-8 S 7 '15
- Vacuum pump for vacuum heating and vacuum filtration systems. *Il Met & Chem Eng* 12:795-6 D '14

Valence (chemistry)

- Criticism of the electron conception of valence. R. F. Brunel. *Am Chem Soc J* 37:709-22 Ap '15
- Electron conception of valence: inorganic compounds. J. M. Nelson and K. G. Falk. *Am Chem Soc J* 37:274-86 F '15
- Electron conception of valence: the theory of electrolytic dissociation and chemical action. K. G. Falk and J. M. Nelson. *Am Chem Soc J* 37:1732-48 J1 '15
- Electronic conception of positive and negative valences. H. S. Fry. *Am Chem Soc J* 37:2368-73 O '15
- Interpretations of some stereochemical problems in terms of the electronic conception of positive and negative valences. H. S. Fry. *Am Chem Soc J* 37:855-92 Ap '15
- Theory of valency and molecular structure. W: C. Arsem. *diagrs Am Chem Soc J* 36:1655-76 Ag '14
- Valence of nitrogen in ammonium salts. W: A. Noyes and R. S. Potter. *Am Chem Soc J* 37:189-203 Ja '15

See also Substitution (chemistry)

Valleys

- Stream-valleys and their meaning. *Sci Am* 80:256 O 16 '15

Valparaiso, Indiana**Water supply**

- Water works of Valparaiso, Ind. E. L. Loomis. *Il Munic Eng* 49:9-12 J1 '15

Valuation

- Analysis of elements of cost of a complete plant unit. W. J. Huddle. *Eng & Contr* 44:139-40 Ag 25 '15
- Appraisement of small electric properties. E. D. Dreyfus. *Elec R & W Elec'n* 66:433-8, 500-5 Mr 6-13 '15
- Engineer's idea of values is usually confused; Prof. John R. Common's views. *Eng & Contr* 43:284 Mr 31 '15
- Foundation principles of valuation. B. J. Arnold. *Elec Ry J* 46:713-19, 803-6 O 9-16 '15; Discussion. 46:732-3 O 9 '15
- Fundamentals of appraisal and valuation. M. E. Cooley. *Elec Ry J* 46:913 O 30 '15

Valuation—Continued.

- Handy book-form data sheet for valuation work. R. E. Klotz. *Il Eng N* 74:794 O 21 '15
 Kalamazoo situation. W: Newbigging. *Am Gas Light J* 103:38-9 JI 19 '15
 Overhead charges in valuation. R: H. Tingley. *Ry Age* 58:1347-8 Je 11 '15
 Pacific gas and electric company valuation methods. *Am Gas Light J* 102:179 Mr 22 '15
 Philadelphia valuation conference—some editorial views. *Eng Rec* 72:620-1 N 20 '15
 Reproduction basis of valuation criticised. J: M. Eshleman. *Eng Rec* 72:625-6 N 20 '15
 Symposium on inventories and appraisals of properties. C. L. Cory; W. G. Vincent, Jr.; W: J. Norton. *Am Inst E E Pro* 34:2131-58 S '15
 Unique problem in valuation; inheritance tax appraisal of the Hales Bar hydro-electric plant. L: L. Tribus. *Eng N* 73:384-5 F 25 '15
 Utilities bureau convention, Philadelphia, 1915; valuation conference. *Eng N* 74:1002-3 N 18 '15; *Elec Ry J* 46:990-5, 1031-4 N 13-20 '15; *Elec R & W Elec'n* 67:939-41 N 20 '15; *Elec W* 68:1125-9 N 20 '15; *Eng Rec* 72:643-5 N 20 '15; *Munic J* 39:788-9 N 18 '15
 Valuation of merchandise inventories. *J Account* 18:461-3 D '14

See also Depreciation; Machinery—Valuation; Mine valuation; Public service corporations—Valuation; Railroads—Valuation; Real estate; Street railroads—Valuation; Waterworks—Valuation

Valuation of railroads. See Railroads—Valuation Valves

- Adco graduated radiator valve. *diag Power* 41:115 Ja 26 '15
 Air compressor valve is designed for superheated steam. *Il Eng Rec* 72:680 N 27 '15
 Air compressor valve of steel strips. *Il Iron Age* 95:1010 My 6 '15
 American-made reducing valve. C. F. Williams. *Il Iron Tr R* 66:16 Ja 7 '15
 Analysis of the motion of suction and pressure valves; abstract. O. Klepal. *diags Am Soc M E J* 37:717-19 D '15
 Atlas regulating valve. *Il Power* 42:304 Ag 31 '15
 Automatic stop valves. W. L. Durand; J. C. Hawkins. *Power* 42:239-40 Ag 17 '15
 Auxiliary exhaust valves on uniflow engines. A. D. Skinner. *diag Power* 41:448-50 Mr 30 '15
 Auxiliary exhaust valves on uniflow engines. R. Trautschold. *Power* 42:59-60 JI 13 '15
 Auxiliary exhaust valves on uniflow engines. W. Turnwald. *Power* 41:515-16 Ap 13 '15
 Bradford automatic nonreturn boiler stop valve. *diag Power* 40:886 D 22 '14
 Clear way pump valve. *diag Engineer* 119:212 F 26 '15
 Cochran multiport flow valve. *Il Power* 41:508 Ap 13 '15
 Data on reducing valves. T: Tait. *Dom Eng* 71:5 Ap 3 '15
 Defective valves cause slippage in pumping engines. A. A. Wood. *Il Eng Rec* 71:593 My 8 '15
 Designing high-pressure steel valves. E. G. Greenman. *diag Iron Age* 96:125-6 JI 15 '15
 Diaphragm-operated triple valve. *diags Ry Age (Mech ed)* 89:92-4 F '15
 Dole vacuum valve. *Il Dom Eng* 72:351 S 18 '15
 Double-cushioned non-return valves. *diag Elec Ry J* 46:838 O 16 '15
 Electrically operated stop valve. *diags Power* 41:840-1 Je 22 '15
 Exhaust passage drain valve. *diags Ry Age (Mech ed)* 89:586 N '15
 Facing up rubber pump valves. S. H. Farnsworth. *diags Power* 42:453 S 23 '15
 Finishing tank valve castings. W. W. Elfe. *Il Ry Age (Mech ed)* 89:82 F '15
 Flushing valve design and installation. *diags Metal Work* 32:603-5, 710-11; 33:119-21, 157-9 N 6, 27 '14, Ja 15-22 '15
 Forty-million-revolution compressor-valve test. *Il Power* 41:537-8 Ap 20 '15
 Golden-Anderson automatic non-return valve. *diag Ry Age (Mech ed)* 89:596 N '15
 High pressure gas valve. *Il Ry Age (Mech ed)* 89:44 Ja '15
 Hovalco blowoff valve. *Il Power* 42:588 O 26 '15

- Important points when installing motor-operated valves. *Elec W* 65:1626 Je 19 '15
 Lack of synchronism in check-valve action. S. F. Jeter. *diags Power* 41:48 Ja 12 '15
 Lunkenheimer balanced throttle valve. *Il Power* 41:814 Je 15 '15
 Making superheated steam gate valves. *Il Iron Age* 95:846-7 Ap 15 '15
 Multiplex atmospheric exhaust relief valve. *Il Power* 42:368 S 14 '15
 New high-pressure gas valve. *Il Met & Chem Eng* 12:794-5 D '14
 No. 8 Hoffman return line valve. *Il Dom Eng* 73:248 N 20 '15
 Outfit for truing valves. D. A. Hampson. *diag Horseless Age* 85:847 Je 23 '15
 Piston valves applied to slide valve cylinders. *Il Ry Age (Mech ed)* 89:253 My '15
 Plate valves for high-speed air compressors. G. J. MacFadden. *diags Power* 41:368-3 Mr 16 '15; Same cond. *Eng M* 49:360-1 My '15
 Powell automatic and double-automatic stop valve. *diags Power* 41:127-3 Ja 26 '15
 Priming a centrifugal pump. E. M. Ivens. *Il diags Power* 41:380-2 Je 29 '15
 Reducing piston valve leakage. V. T. Kropidowski. *diags Ry Age (Mech ed)* 89:359-60 JI '15
 Reeves adjustable piston valve. *Il Power* 42:503 O 13 '15
 Reseating a ball engine valve. R. A. Jannet. *diags Power* 41:518 Ap 13 '15
 Rotary four-way valve. E. H. Wolf. *diags Ry Age (Mech ed)* 89:542 O '15
 Rotary valve progress. *diags Horseless Age* 85:249 F 17 '15
 Rothenbacher reversible pump valve. *diag Power* 42:752 N 30 '15
 Rub-steel pump valve. *Il Power* 41:803 Je 15 '15
 Setting double-eccentric Corliss valves. R. L. Shipman. *Power* 42:164 Ag 3 '15
 Simplate valve—its construction and operation. *diags Eng & Contr* 41:237-8 O 13 '15; *Ry Age (Mech ed)* 89:545-6 O '15; *Eng & Min J* 100:805-6 N 13 '15; *Eng M* 50:sup4-5 N '15; *Int Marine Eng* 20:524 N '15; *Power* 42:615-16 N 2 '15; *Mach* 22:346 D '15
 Simple, durable, electrically operated gas-valve. Z. Ostenberg. *Il J Ind & Eng Chem* 7:872 O '15; Same. *Am Gas Light J* 103:279 N 1 '15
 Solenoid attachment for automatic altitude valves. *diag Eng Rec* 70:sup289 D 12 '14
 Steam stop valves: a survey of the field of design. L. C. Bowes. *diags Sibley J* 29:231-40, 249-50, 272-84, 293-4 Ap-May '15
 24-in. gate valve for blast furnaces: sketch. P. H. Barbour. *Eng & Min J* 99:449 Mr 6 '15
 Use of relief valves on cupola blast pipes. *Foundry* 43:26-7 Ja '15
 Valve part manufacturing on a bench lathe. *Il diags Mach* 22:49-50 S '15
 Valve requirements of boilers. T. W. Reynolds. *plans Elec W* 66:976-8 O 30 '15
 What broke the valve? E. Hurst; F. S. Hearne. *diag Power* 42:451 S 23 '15
 What broke the valve? N. Olson. *diags Power* 42:309 Ag 31 '15
 What broke the valve? W. J. Jones; W: A. Butler. *diag Power* 42:761 N 30 '15

See also Automobile engines—Valves; Locomotives—Valves and valve gear; Safety valves; Slide valves; Steam engines

Cleaning

- Cleaning triple valves. *Il Ry Age (Mech ed)* 89:568 N '15
 Valves, Hydraulic
 Automatic compensation water valve. *Il diag Engineer* 119:609 Je 18 '15
 Automatic control apparatus for hydraulic gate valves. *diag Eng & Contr* 43:408 My 5 '15; *Ry Age* 58:1072 My 21 '15
 Automatic gate-valve control. *diag Eng N* 73:1098 Je 3 '15
 Description of tests of butterfly valves on locks in the Black Warrior region, in Alabama; abstract. C: Keller. *diags Am Soc M E J* 37:613-14 O '15
 Dexter gate-valve reseater. *Il Power* 42:300 Ag 31 '15

Valves, Hydraulic—Continued

- Experiences with electrically operated valve installations, under remote control, in New York city. A. Williamson. Eng & Contr 44: 225 S 22 '15
- Hydraulic rolling mill operating valve. diag Iron Age 96:811 O 7 '15
- Johnson hydraulic valve. II Eng M 48:sup2-4 Ja '15
- New hydraulic stop valve. C. W. Lerner. II diags Eng N 72:1102-3 D 3 '14
- New hydraulic valve. II Power 41:138 Ja 26 '15
- Reasons for retaining the solid wedge type of valve in Boston. G. H. Finneran. Eng & Contr 44:224-5 S 22 '15
- Standard gate valves of the New York city waterworks. II diags Eng N 73:1016-18 My 27 '15
- Successful application of valve inserting machine under high pressure. II Eng & Contr 44:98 Ag 4 '15
- Tests of butterfly valves result in modified design. diag Eng Rec 72:419 O 2 '15
- Twenty-ton valve lowered down 250-foot shaft in 20 min. R. W. Greenlaw. II Eng Rec 71: 181 F 6 '15
- Two new large Johnson valves, Oneida plant, Phoenix, Utah. II Eng N 74:507 S 9 '15; Iron Age 96:412-13 Ag 19 '15
- Water motors operate gate-valves in nozzle lines. J. W. Swaren. II Eng Rec 72:134 J1 31 '15

Vanadium

- Romantic story of vanadium. C. J. Stark. II Iron Tr R 57:781-4+ O 21 '15
- Simplified ferrous sulfate method for the determination of vanadium in steel. G. T. Dougherty. J Ind & Eng Chem 7:419-20 My '15
- Tests of vanadium iron castings. Foundry 43: 179-80 My '15; Same. Iron Tr R 57:221-2 J1 29 '15
- Vanadium from oxide to steel. W. F. Bleecker and W. L. Morrison. Met & Chem Eng 13: 492-4 Ag '15
- Vanadium in brass. R. J. Dunn and O. F. Hudson. Metal Ind n s 13:330 Ag '15
- Vanadium in German ores. L. Blum. Iron Age 95:347 Ap 15 '15

Vanadium steel

- Annealed carbon-vanadium product to replace heat-treated forgings for locomotives. Iron Age 95:1298 Je 10 '15; Ry R 56:810 Je 12 '15
- Properties of vanadium steel and its use in long-span bridges. G. L. Norris. Eng & Contr 42:495-6 N 25 '14
- Test of vanadium rails. II Elec Ry J 45:388 F 20 '15; Iron Age 95:398 F 13 '15
- Vanadium from oxide to steel. W. F. Bleecker and W. L. Morrison. Met & Chem Eng 13: 492-4 Ag '15
- Vanadium not a scavenger. E. W. Strong. Iron Age 96:1250 N 25 '15
- Vanadium steel rails of 105-lb. section. D. L. & W. R. R. II Ry R 56:249-51 F 20 '15; Summary. Ry Age 58:332 F 19 '15
- What is vanadium steel? D. J. Evans. Mach 22:145 O '15
- What is vanadium steel? J. L. Uhler. Iron Age 96:1250-1 N 25 '15

Van Buren bridge route

- New Canada-New England railroad link completed. maps Eng Rec 71:559 My 1 '15

Vancouver, British Columbia**Railroads**

- Terminal improvements of the Canadian Pacific railway at Vancouver. II plan Eng N 73:340-1 F 18 '15; Same. Ry R 56:380-5 Mr 20 '15

Vanilla extract

- Acidity and ash of vanilla extract. A. L. Winton, A. R. Albright and B. H. Berry. J Ind & Eng Chem 7:516-19 Je '15
- Modification of Wichmann's method for the detection of small amounts of coumarin, particularly in factitious vanilla extracts. J. R. Dean. J Ind & Eng Chem 7:519 Je '15

Vanillin

- Condensation of vanillin and piperonal with certain aromatic amines. A. S. Wheeler. Am Chem Soc J 37:1362-4 My '15

- Effect of certain organic compounds on wheat plants in the soil. F. W. Upson and A. R. Powell. II J Ind & Eng Chem 7:421 My '15

Vapor density

- Densities and degrees of dissociation of the saturated vapor of phosphorus pentachloride. A. Smith and R. H. Lombard. diags Am Chem Soc J 37:2055-62 S '15
- Densities and degrees of dissociation of the saturated vapors of the ammonium halides, and the related thermal data. A. Smith and R. H. Lombard. Am Chem Soc J 37:33-70 Ja '15

Vapor pressure

- Measurement of vapor pressure lowering by the air saturation method. E. W. Washburn and E. O. Heuse. II diags Am Chem Soc J 37: 309-21 F '15
- Method of finding the partial from the total vapor pressures of binary mixtures, and a theory of fractional distillation. M. A. Rosanoff, C. W. Bacon, and J. F. W. Schulze. Am Chem Soc J 36:1998-2004 O '14
- Partial vapor pressures of tertiary mixtures of toluene, carbon tetrachloride and ethylene bromide. M. A. Rosanoff, J. F. W. Schulze, and R. A. Dunphy. Am Chem Soc J 36:2480-95 D '14
- Rapid laboratory method of measuring the partial vapor pressures of liquid mixtures. M. A. Rosanoff, C. W. Bacon and R. H. White. diags Am Chem Soc J 36:1303-25 S '14
- Studies of the vapor pressure of solutions; a static method for the determination of the difference between the vapor pressure of solution and that of solvent. J. C. W. Frazer and B. F. Lovelace. diags Am Chem Soc J 36:2439-49 D '14
- Vapor pressure of arsenic trioxide. H. V. Welch and L. H. Duschak. II U S Bur Mines Tech Pa 31:1-20 '15
- Vapor pressure of ethane and ethylene at temperatures below their normal boiling points. G. A. Burrell and I. W. Robertson. diags Am Chem Soc J 37:1893-1902 Ag '15
- Vapor pressure of iodine between 50° and 95°. G. P. Baxter and M. R. Grose. Am Chem Soc J 37:1061-72 My '15
- Vapor pressure of thallium amalgams. J. H. Hildebrand and E. D. Eastman. Am Chem Soc J 37:2452-9 N '15
- Vapor pressures of acetylene, ammonia and isobutane at temperatures below their normal boiling points. G. A. Burrell and I. W. Robertson. Am Chem Soc J 37:2482-6 N '15
- Vapor pressures of certain alcoholic solutions. O. F. Tower and A. F. O. Germann. II Am Chem Soc J 36:2449-56 D '14
- Vapor pressures of propane, propylene and normal butane at low temperatures. G. A. Burrell and I. W. Robertson. Am Chem Soc J 37:2188-93 S '15
- Vapor pressures of silver, gold and bismuth amalgams. E. D. Eastman and J. H. Hildebrand. diags Am Chem Soc J 36:2020-30 O '14
- Vaporization. See Evaporation
- Vapors
- Composition of paint vapors. C. A. Klein. J Ind & Eng Chem 7:99-102 F '15
- Study of vapors from drying paint films. H. H. King. diags J Ind & Eng Chem 7:502-4 Je '15
- See also Evaporation; Gases; Steam; Vapor density; Vapor pressure
- Variation (biology)
- Mutation and modification of bacteria. R. Lankester. Sci Am S 79:319-20 My 15 '15
- Varnish and varnishes
- Constitution of Chinese wood oil varnishes. E. B. Ware and C. L. Schumann. J Ind & Eng Chem 7:571-3 J1 '15
- Contributions of the chemist to the paint and varnish industry. M. Toch. J Ind & Eng Chem 7:938 N '15
- Determination of methyl and ethyl alcohol in spirit varnishes. G. W. Knight and C. T. Lincoln. J Ind & Eng Chem 7:837-43 O '15
- See also Japanning; Lacquer

- Vaudremer, Emile, 1829-1914
Sketch and appreciation. J. P. Alaux; L. Bra-
chet; W. Cook. II plans Am Inst Arch J 3:
292-9 J1 '15
- Vaulting. See Domes; Vaults
- Vaults
Bank vault contains new shop fabricated unit
reinforcement. II Eng Rec 72:sup161 O 23
'15
Strongest vault in the world. II Sci Am S 79:
169 Mr 13 '15
- Vector diagrams. See Electric currents, Alter-
nating
- Vegetable ivory
Concerning the nutritive value of vegetable
ivory—preliminary notes. C. L. Beals. J Ind
& Eng Chem 7:161 F '15
- Vegetable oils. See Oils and fats
- Vegetarianism
Investigation of vegetarianism. Sci Am 112:
384 Ap 24 '15
- Vehicles
Measuring shocks of vehicles and vibrations of
buildings. A. Boyer-Guillon. II diags Sci Am
S 78:364-5 D 6 '14
See also Automobiles; Cars; Electric ve-
hicles; Motor vehicles
- Veneers and veneering
Where veneers are used. Am Ind 15:36-7 My
'15
- Venice
Harbor
Works for the improvement of navigable estu-
aries; abstract. L. Luiggi. Eng Rec 72:637-8
N 20 '15
- Venom
Animal venoms and venomous animals. Sci Am
S 80:345 N 27 '15
- Ventilating fans. See Fans, Mechanical
- Ventilation
Advance in heating and ventilating field. R. C.
Carpenter. Metal Work 84:431-3 O 1 '15
Air conditioning in a moving picture labora-
tory. II plans Heat & Ven 12:20-6 F '15
Air ozonation. M. W. Franklin. J Ind & Eng
Chem 6:850-2 O '14; Same. Am Soc Heat &
V E 20:337-50 '14; Excerpts. Heat & Ven 11:
28-34 O '14; Metal Work 83:732-3 My 21 '15
American society of heating and ventilating
engineers twenty-first annual meeting, Janu-
ary 20-22, 1915. Heat & Ven 12:39-48 F '15
Analysis of modern ventilation theories.
J. M. W. Kitchen. Heat & Ven 12:30-1 Mr
'15
Architect on modern ventilation ideas. C. S.
Kaiser. Heat & Ven 12:45-6 S '15
Blower systems for heating and ventilating.
A. M. Feldman. diags Dom Eng 69:257 N 28
'14; Same. Am Soc Heat & V E 20:412-15 '14
Chicago ventilation commission first report.
II Metal Work 83:632-5+ Ap 30 '15
Developments and present problems in heating
and ventilation. J. R. Allen. Am Soc Heat
& V E 19:53-62 '13
Downward ventilation in a Rockford, Ill.,
schoolhouse; with discussion. C. E. Beery. II
plans Am Soc Heat & V E 19:68-81 '13
Edison phonograph shop. C. E. Daniel. plans
Heat & Ven 12:13-18 Ap '15
Engineers show need of good ventilation. Metal
Work 83:203-7+ Ja 29 '15
Factory building equipped with outside air
ducts. II plans Heat & Ven 12:19-25 Ap '15
Factory with down ventilation through col-
umns. II plan Eng N 78:1012-13 My 27 '15
Fans for ventilating work. C. L. Hubbard. Eng
M 48:385-92 D '14; Same. Eng & Contr 48:
197-9 Mr 3 '15
Fresh air and eating. Sci Am 113:92 J1 31 '15
Future developments in heating and ventila-
tion. A. H. Barker. Power 41:897-8 Je 29 '15;
Abstract. Am Soc M E J 37:490-1 Ag '15
Heating and ventilating an office building by
electricity; Hydraulic power co.'s plant at
Niagara Falls. C. F. Herington. II diags plan
Heat & Ven 12:12-22 Je '15
Heating and ventilating conditions in large
office building. C. E. A. Winslow and G. F.
Maglott. Heat & Ven 12:26-31 F '15
Heating and ventilating industrial plant. J. H.
O'Brien. II Metal Work 83:319-22 F 26 '15
Heating and ventilating plant for the Mis-
sour state capitol; reversible system of air
supply for house and senate chambers. II
diags plans Heat & Ven 12:13-21 My '15
Heating and ventilating practice in Sweden.
H. Theorell. Am Soc Heat & V E 20:94-7 '14
Heating and ventilating stables and garages.
C. L. Hubbard. diags Dom Eng 72:168-70 Ag
7 '15
Heating and ventilation of main floor and ves-
tibules of the Lord & Taylor store. J. Gra-
ham. diags Dom Eng 72:282-3 S 4 '15
Heating and ventilation of offices and bank-
ing rooms. C. L. Hubbard. diags Brickb 23:
307-10 D '14
Horizontal air currents advocated for room
ventilation. Heat & Ven 12:48 Ja '15
Hygienic home: facts about ventilation and
fresh air. J. B. Todd. Sci Am S 79:74 Ja 30
'15
Illinois chapter discusses kitchen ventilation.
Metal Work 83:171 Ja 22 '15
Improved air conditions in a Boston residence.
F. I. Cooper. plan Am Soc Heat & V E
19:82-8 '13
Kitchen ventilation for a modern hotel: equip-
ment of the Biltmore, New York. II diags
plan Heat & Ven 12:13-18 Ja '15
Lecture course on elements of heating. C. A.
Fuller. Metal Work 81:129-30, 209, 281-2,
338-9; 82:31-3; 83:574-6, 703-5, Ja 16, 30, F
13, 27, J1 10 '14, Ap 16, My 14 '15
Modern equipment in Detroit athletic club.
diag plan Metal Work 84:73-6 J1 18 '15
New observations on ventilation. O. W. Grif-
fith. Heat & Ven 12:25-6 N '15
New York state commission on ventilation:
high temperatures have marked physiological
effect. Elec Ry J 44:1330 D 19 '14
Ozone—an aid to factory ventilation. V. D.
Greene. diag Eng M 49:517-25 J1 '15
Ozone and its applications. M. W. Franklin.
Am Soc Heat & V E 19:128-40 '13
Ozone in ventilation. J. C. Olsen and W. H.
Ulrich. Sci Am S 78:34-5 Ja 18 '15
Practical ventilation. C. F. Bennett. Dom Eng
73:282-3 N 20 '15
Progress of heating and ventilating art in the
last decade. R. C. Carpenter. Sibley J 30:
61-4 N '15
Public health and sanitary rules. Metal Work
84:465 O 8 '15
Recent developments in ventilation work. D. D.
Kimball. Metal Work 84:494-7 O 15 '15
Reduction or elimination of noise attending
the operation of mechanical ventilating ma-
chinery. R. W. Pryor. Jr. plans Heat & Ven
11:26-9 Ag '14; Same. Iron Age 94:210-11 J1
23 '14; Same. Metal Work 82:275-8 S 4 '14;
Same; with discussion. Am Soc Heat & V E
20:330-9 '14; Discussion. Heat & Ven 11:44-5
N '14
Relation of ventilation to bodily health. T. R.
Crowder. Metal Work 84:116-17 J1 23 '15
Report of N. C. G. A. committee on heating,
ventilation and refrigeration. G. S. Barrows.
Am Gas Light J 101:411 D 28 '14
Report on work of ventilation division of the
Chicago health department for 1913. E. V.
Hill. diag Am Soc Heat & V E 20:57-73 '14
Theory and practice of heating and ventila-
ting in France. G. Debesson. diags Am Soc
Heat & V E 20:124-50 '14
Theory of ventilation. Metal Work 84:453 O 3
'15
Ventilating and cooling a church. plan Bldg
Age 37:81-2 S '15
Ventilating and cooling church edifice. plan
Metal Work 82:757-8 D 11 '14
Ventilating the House of commons. A. P.
Patey. Metal Work 83:538 Ap 9 '15
Ventilation and the open window. M. S. Cooley.
Am Soc Heat & V E 19:361-3 '13
Ventilation of industrial plants. C. T. Graham-
Rogers and W. T. Doyle. Metal Work 83:
283+ F 19 '15; Same. Dom Eng 71:4-5 Ap 8
'15
Ventilation of smoking room. H. N. Oman.
Metal Work 83:512-13 Ap 2 '15
Ventilation of telephone and movie booths.
R. L. Douglass. II Dom Eng 69:161-2 N 7 '14;
Same; with discussion. Am Soc Heat & V E
20:330-6 '14

Ventilation—Continued.

Ventilation standards for factories. Eng & Contr 43:519 Je 9 '15

Ventilation theory and impure air. C. F. Bennett. Metal Work 84:76 Jl 16 '15

Work of the Chicago ventilation commission. Il plans Heat & Ven 12:26-31 My '15

See also Air conditions; Air flow; Air purification; Air washers; Car ventilation; Chimneys; Cooling; Fans, Mechanical; Heating; Hospitals—Heating and ventilation; Hotels—Heating and ventilation; Humidity; Mine ventilation; Schoolhouses—Heating and ventilation; Subways—Ventilation; Theaters—Heating and ventilation; Tunnel ventilation; Ventilators; also Institute of heating and ventilating engineers

Experiments

Experiment in school room ventilation with reduced air supply through individual ducts; with discussion. F. Bass. Il Am Soc Heat & V E 19:328-60 '13

Experimental plant of the New York state commission on ventilation. Il plans Heat & Ven 12:18-26 Mr '15

Experiments arranged by New York ventilation commission. Heat & Ven 11:48 D '14

Progress of laboratory experiments with air. F. S. Lee. Metal Work 84:338-9+ S 10 '15

Recent tests on recirculation of washed air. G. L. Larson. Il Metal Work 84:675-7+ N 28 '15; Abstract. Am Soc M E J 37:723-4 D '15

Recirculating of air in a school in Minneapolis. F. Bass. Heat & Ven 12:27-30 Mr '15

Results of physiological and psychological observations during the first year's experiments; abstract. D. D. Kimball and G. T. Palmer. Power 41:177 F 2 '15

Laws and regulations

General statement of the committee of Am. society of heating and ventilating engineers on compulsory ventilation. Power 41:176-7 F 2 '15

Legislation for compulsory ventilation; committee report with discussion. Am Soc Heat & V E 19:179-93 '13

Proposed standards for ventilation legislation for motion picture show places; with discussion. Am Soc Heat & V E 19:166-78 '13

Ventilating division of the health department, Chicago, Ill. E. V. Hill. Il diags Am Soc Heat & V E 19:412-34 '13

Ventilators

Long Island railroad installs double ventilators. diag Elec Ry J 46:194 Jl 31 '15

Tests of exhaust ventilators on passenger trains. G. L. Fowler. Ry Age 58:1009-12 My 14 '15; Same. Ry Age (Mech ed) 89:235-8 My '15

Venturi formula

Note on the modified venturi formula for flow of gases or vapors. G. B. Upton. Sibley J 29: 90-5 D '14

Venturi meters

Special Venturi meter for irrigation water measurement. diag Eng & Contr 43:61-2 Ja 20 '15

Venturi meter for sewage measurement. C. G. Richardson. Il diags Boston Soc C E J 1:429-37 O '14

Veratrine

Veratrine and some of its derivatives. G. B. Frankforter and W. Kritchevsky. Am Chem Soc J 37:3567-9 N '15

Vessels. See Steamboats**Viaducts. See Bridges****Vibrations**

Explorations over the vibrating surfaces of telephonic diaphragms under simple impressed tones. A. E. Kennelly and H. O. Taylor. Elec W 86:463 Ag 28 '15

Measuring shocks of vehicles and vibration of buildings: a means for investigating important traffic problems. A. Boyer-Guillon. Il diags Sci Am S 78:364-5 D 5 '14

See also Automobiles—Vibration

Victoria, British Columbia**Water supply**

Costs and special features of the new water supply of Victoria, British Columbia. B. Ehle. Il diags Eng Rec 72:406-10 O 2 '15

Sooke lake water-supply for Victoria. C. H. Rust. Eng N 74:996-7 N 13 '15

Ten and three-quarters miles of 36-inch riveted-steel pressure line built on Sooke work. B. Ehle. Il plan Eng Rec 72:564-5 N 6 '15

Virgin country renders concrete pipe line construction difficult. B. Ehle. Il diags plan Eng Rec 72:507-10 O 23 '15

Villa Madama, Rome. See Rome (city)—Architecture

Villas. See Architecture, Domestic—Designs and plans

Vincennes, Indiana**Sanitary affairs**

Sanitary survey of Vincennes. Eng & Contr 43:268 Mr 24 '15

Vinegar

Utility of sulfurous acid and pure yeast in cider vinegar manufacture. W. V. Cruess, J. R. Zion and A. V. Sifredi. J Ind & Eng Chem 7:324-5 Ap '15

Violin**Testing**

Apparatus for determining quality and intensity of violin tones. D. Richardson. Sci Am 113:384+ O 30 '15

Violin playing

Device for the simultaneous playing of violin and piano. Il Sci Am 113:471 N 27 '15

Virginia**Capitol**

Thomas Jefferson and the first monument of the classical revival in America. F. Kimball. Il Am Inst Arch J 3:370-81, 421-34, 473-91 S-N '15

Industries and resources

Oriskany iron ores of Virginia. C. M. Weld. maps Econ Geol. 10:399-421 Jl '15

Virginia power company

Cabin Creek plant. Il diags plan map Elec W 66:239-44 Jl 31 '15

One boiler room instead of fifty; Cabin Creek plant. Il diags Elec W 66:286-91 Ag 7 '15

Viscometers

Comparison viscometer for oils. diag Am Gas Light J 103:301 N 8 '15

Design of an absolute viscometer for engineering testing of oils. G. B. Upton. Sibley J 29:262-9 My '15

New direct-reading viscosimeter. R. F. MacMichael. Il J Ind & Eng Chem 7:961-3 N '15; Same. Met & Chem Eng 13:787-9 O 15 '15

Viscosity

Conductivity and viscosity of solutions of electrolytes in formamid. P. B. Davis, W. S. Putnam and H. C. Jones. Il diags J Fr Inst 180:567-601 N '15

Theory of lubrication. L. Ubbelohde. Gen Elec R 18:966-72, 1074-81, 1118-21 O-D '15

Viscosities of binary mixtures of the associated liquids, water, formic acid and acetic acid. P. B. Davis and H. C. Jones. Am Chem Soc J 37:1194-8 My '15

Viscosity of porcelain bodies high in feldspar. A. V. Bleininger and C. S. Kinnison. U S Bur Stand Tech Pa 50:1-7 '15; Abstract. Metal Work 84:528 O 22 '15

See also Viscometers

Visibility. See Optics**Visible speech**

Visible speech; eye seeing and the rule measuring the difference between sounds. A. L. Kroeber. Il diags Sci Am 112:471 My 22 '15

Vision. See Eye**Vitamines**

Beriberi-preventing vitamins. W. P. Chamberlain. Sci Am 113:379 O 30 '15

Vitamines and cooking. D. McCaskey. Sci Am 113:379 O 30 '15

Vitamines—Continued.

- Vitamines, and their importance for the maintenance of health. Dr. Reinhardt. *Sci Am* 113:288-9 S 11 '15
- Vitreous. See Silica, Fused
- Vitrification. See Clay products
- Vladivostok, Siberia
- Vladivostok open all the year. J. B. Caldwell. *Sci Am* 113:487 D 4 '15
- Vocational education
- Evening courses in retail selling at University of Minnesota. *Am Ind* 15:18 Ja '15
- Learning through doing. *Sci Am* 112:624 Je 26 '15
- Lengthening the educational perspective. L. Galloway. *Am Gas Light J* 101:388 D 21 '14
- National commercial gas association courses, and compulsory education. L. Galloway. *Am Gas Light J* 103:102-3; Discussion. 103:103, 106-7 Ag 16 '15
- Rockford vocational school cooperates with central station in training employees. *Il Elec R & W Elec'n* 67:31 J1 3 '15
- See also Industrial education; Professional education; Technical education; Trade schools
- Vocational guidance
- Why vocational guidance. B. C. Gruenberg. *Sci Am S* 79:275 My 1 '15
- Voice
- Standardizing the art of voice production. F. S. Muckey. *Sci Am S* 79:137-8 F 27 '15
- Volatile oils. See Essential oils
- Volcanic steam. See Steam, Natural
- Volcanoes
- Diary of Kilauea. *Il Sci Am S* 79:86 Ja 16 '15
- Notes from a volcano laboratory; personal documents in the case of Kilauea and Mauna Loa. T. A. Jaggard, jr. *Il Sci Am S* 80:214-17 O 2 '15
- Sakurajima, eruptions and earthquakes. E. Omori. *Sci Am S* 79:242-3 Ap 17 '15
- See also Lassen Peak
- Voltage regulation
- Automatic voltage regulators. W. H. Acker. *Il diags Elec W* 65:127-8 Ja 9 '15
- Direct-current three-wire systems. G. Fox. *diags Power* 41:505-8 Ap 13 '15
- Lamp-socket energy economizer. *Il Elec R & W Elec'n* 66:742-3 Ap 17 '15
- Regulator for car-lighting circuits. *Il diags Elec Ry J* 45:851-2 My 1 '15
- Schweitzer automatic instantaneous voltage regulator. *diag Elec R & W Elec'n* 66:271 F 6 '15
- Storage-battery voltage regulation. C. S. Redding. *Il diags Elec W* 65:1134-5 My 1 '15
- Voltage arc. See Electric arc
- Voltmeters
- Complications at the anode in the silver coulometer (voltmeter). T. W. Richards and F. O. Anderegg. *diag Am Chem Soc J* 37: 675-98 Ap '15
- Inclusion of electrolyte by the deposit in the silver voltmeter. T. W. Richards and F. O. Anderegg. *Am Chem Soc J* 37:7-23 Ja '15
- Studies on the silver voltmeter. G. A. Hulett and G. W. Vinal. *U S Bur Stand Bul* 11:553-70 My 27 '15
- Voltmeters
- Cheap 110-volt alternating-current voltmeter. A. E. Oswald. *diag Elec R & W Elec'n* 67: 973 N 27 '15
- Proper use of ammeter and voltmeter in the plating room. *Metal Ind n s* 13:57-9 F '15
- Voltmeter and ammeter in the plating room. S. E. Huenerfauth. *Metal Ind n s* 13:71 F '15
- Volumeter
- Automatic volumeter; abstract. E. G. Hopson. *diag Am Soc M E J* 37:722-3 D '15
- Volumetric analysis
- Acid potassium and acid sodium phthalates as standards in acidimetry and alkalimetry. W. S. Hendrixson. *Am Chem Soc J* 37:2352-9 O '15
- Acid ratio; a new method for determining the proteolytic strength of germinated grain in technical analysis. C. A. Nowak. *J Ind & Eng Chem* 7:858-9 O '15
- Arsenious oxide as an alkalimetric standard. A. W. C. Menzies and F. N. McCarthy. *Am Chem Soc J* 37:2021-4 S '15
- Determination of ferrous iron in silicates by titration with dichromate. O. L. Barnebey. *Am Chem Soc J* 37:1829-35 Ag '15
- Economy and rapidity in copper titrations. E. A. Slagie. *Eng & Min J* 99:285 F 6 '15
- Electro-titrimetric method and its application to general analytical chemistry. F. H. Hesselink van Suchtelen and A. Itano. *Am Chem Soc J* 36:1793-1803 S '14
- Ferrocyanide determination of zinc. *Eng & Min J* 99:285-6 F 6 '15
- Method for the precise standardization of hydrochloric acid solutions. L. W. Andrews. *Am Chem Soc J* 36:2039-91 O '14
- Method for the titration of small amounts of halides. F. C. McLean and D. D. Van Slyke. *Am Chem Soc J* 37:1128-34 My '15
- Rapid analysis of alloys for tin, antimony and arsenic. F. A. Stief. *diag J Ind & Eng Chem* 7:211-12 Mr '15
- Rapid precise standardization of acid solutions. M. Randall and C. C. Scallone. *Met & Chem Eng* 13:787 N 1 '15
- Standardization of alkalimetric solutions. F. D. Dodge. *J Ind & Eng Chem* 7:29-30 Ja '15
- Titration of nitrates with ferrous sulfate. F. C. Bowman and W. W. Scott. *J Ind & Eng Chem* 7:766-9 S '15
- Volumetric estimation of titanium by means of ferric chloride. T. R. Ball and G. M. Smith. *Il Am Chem Soc J* 36:1838-43 S '14
- Volumetric Fehling method using a new indicator. A. M. Breckler. *J Ind & Eng Chem* 7:37-8 Ja '15
- Volumetric apparatus
- Portable titrating table. R. E. Oxley. *Il diag J Ind & Eng Chem* 7:873-8 O '15
- Testing of glass volumetric apparatus. *diags U S Bur Stand Circ* 9:1-31 '14
- Titration table. R. S. Potter and R. S. Snyder. *Il J Ind & Eng Chem* 7:45-6 Ja '15
- See also Pipets
- Voting
- Voting by electrical apparatus. *diags Elec R & W Elec'n* 66:744-5 Ap 17 '15
- Voting machines
- Voting machines in Wisconsin. F. H. MacGregor. *Munic J* 39:958 O 23 '15
- Vulcanized fiber
- Vulcanized fibre. C. Almy, jr. *Il Met & Chem Eng* 13:748-7 O 15 '15

W

- Wabash railroad
- Reorganization plan. *Ry Age* 58:978 My 7 '15
- Statistics. map *Ry Age* 58:256-7 F 12 '15
- Waco, Texas
- Water supply
- Water sedimentation, coagulation and mechanical filtration at Waco, Texas. *Il Eng N* 72: 1162-3 D 10 '14
- Wages
- Census of employees and wages. *Elec W* 65:600 Mr 6 '15
- Construction superintendent favors paying off in cash. *Eng Rec* 71:245-6 F '15
- Fifteen years' wage increases in the Canadian northwest. *Eng N* 73:395 F 25 '15
- Handling employees so as to minimize costs. A. M. Burroughs. *Metal Work* 32:790-3+ D 13 '14
- Investigation of wages paid by Pullman company. *Ry Age* 58:786 Ap 9 '15
- Iron and steel wages and hours. *Iron Age* 95: 1265 Je 3 '15
- Methods of adjusting mining rates. L. Gluck. *Colliery* 35:349-53 F '15
- Reduced sheet and tin mill wages. *Iron Age* 95:360 F 11 '15
- Rising wage differential and the cure. *Ry Age* 58:1429 Je 18 '15
- Seven per cent wage reduction granted; British Columbia electric railway, ltd. *Elec Ry J* 46: 392-4 S 4 '15

Wages—Continued

Wage systems in the railroad repair shop. E. Cordeau. Eng M 49:51-7 Ap '15
Wage systems of scientific management. Ind Eng 15:45-50 F '15

Wages and hours of labor in the iron and steel industry. table Mach 21:954 Ag '15

See also Bonus system; Labor and laboring classes; Minimum wage; Piece work; Profit sharing

Walking excavator

Dredge walks along over trench. II Eng N 74: 942 N 11 '15

Excavating machine that walks. II diag Sci Am 112:88 JI 17 '15

Wall decoration. See Mural painting and decoration

Walls

Dry masonry walls for highway embankments. II Eng Rec 70:687 D 26 '14

Lateral strength of hollow-tile walls; tests at St. Louis. II diag Eng N 73:428-9 Mr 4 '15

Length of life of walls of mortar on metal lath. W. E. Belcher. Eng Rec 71:754 Je 12 '15

Old wall used as coffer-dam falls at Louisville. II Eng N 74:764-5 O 14 '15

Stucco board vs. standard built walls. II Bldg Age 37:67-8 Ap '15

See also Building; Dams; Foundations; Mural painting and decoration; Partitions; Plaster and plastering; Retaining walls; Sea walls

Walls, Concrete

Curbing the sea at Galveston. H. M. Robert. II Sci Am 113:268 S 25 '15

Field methods in concrete construction—wall forms: design and construction. J. Cochran. Concrete Cem 7:23-6 JI '15

Model target ranges in Belgium. Sci Am S 79:165 Mr 13 '15

Molds for insulated concrete walls. diag Concrete Cem 7:38 Ag '15

New type of concrete wall construction. diag Concrete Cem 6:208 My '15

Subway undercrossing walls concreted from the top down. II diag Eng Rec 72:25-8 JI 3 '15

Walton, Charles S.

Residence of Charles S. Walton, Esq. R. D. Murray. Arch Rec 38:501-23 N '15

War

Campaigning in winter. Sci Am 111:461 D 5 '14

Disease in warfare. Sci Am 112:468 My 23 '15

Eugenics and war. Sci Am S 79:230 Ap 10 '15

Lessons of the present war from a technical point of view. H. Maxim. Sci Am 112:453 My 15 '15

Nerves and the war. A. Eulenburg. Sci Am 112:214 Mr 6 '15

Steam or electric railways in time of war. Engineer 119:142 F 5 '15

War then and now; comparison between Civil war and European war. I. R. Sherwood. Sci Am 112:480 My 8 '15

Wars, ancient and modern. Sci Am 113:236 S 11 '15

See also Aeronautics, Military; Automobiles in war; Electricity in war; International law; Military art and science; and other headings beginning Military; Motorcycles in war; Peace; Railroads in war; Submarine warfare; Transportation, Military; War games; War materials; Wireless telegraph in war; also European war, 1914-

Relief of sick and wounded

Exposition of military sanitation; showing how the sick and wounded are cared for. A. Gradenwitz. II Sci Am S 79:316-17 My 15 '15

Letters from the firing line: the care of the wounded. X. Sager. II Sci Am 111:510+ D 19 '14

See also Ambulances; Hospital cars; Hospital trains; Surgery, Military; also European war—Medical and sanitary affairs; European war—Relief work

War, Cost of

Prodigious war wastes in minor items. Eng & Min J 100:898 N 27 '15

War and its bearing upon contracts and trade. A. Del Mar. Eng M 50:23 O '15

War, Maritime

See also Lusitania (steamship); Submarine warfare

War cripples. See Cripples

War games

War game and how it is played. II Sci Am 111: 470-1 D 5 '14

War materials

Connecticut to Poland by way of the Pacific; how munitions are shipped to Russia across Asia. H. H. Suplee. map Sci Am 113:115 Ag 7 '15

Government and work on munitions. Iron Age 96:728-9 S 23 '15

Government plant for making munitions. H. H. Campbell. Iron Age 96:910-11 O 14 '15

Making munitions of war in England. Sci Am S 80:181 Ag 28 '15

Making of war munitions at private works; government seeks data. Iron Age 96:358 Ag 12 '15

Mobilisation of war raw materials in Germany. Engineer 119:307-8 Mr 26 '15; Same. Sci Am S 80:30 JI 10 '15

Munition metals. H. C. H. Carpenter. Sci Am S 80:263-3 O 23 '15; Abstract. Eng M 50:112-13 O '15

Munitions of war bill introduced in the House of Commons on June 23. Engineer 120:24-5 JI 2 '15

Naval and military exhibit of the National security league. II Sci Am 112:628 Je 26 '15

Selling arms and ammunition. Sci Am 113:154 Ag 21 '15

Terms of contracts for war munitions. Iron Age 96:635-6 S 16 '15

Use of aluminium in war. N. Flamel. Sci Am S 80:208 S 25 '15

War material and invention. Engineer 119:605-6 Je 18 '15

War order activity in New England. Iron Age 96:301-3 JI 22 '15

War orders and American industry. Eng M 49: 481-8 JI '15

War rushes French plants; automobile factories working 24 hours a day on ammunition, aeroplane and military supplies. W. F. Bradley. II Automobile 32:1013-15+ Je 10 '15

War significance of cotton. Sci Am 113:33 JI 10 '15

See also Ammunition; Automobiles in war; Cotton as contraband of war; European war—Commercial and financial aspects; European war—Military equipment; Motorcycles in war; Shells; Shrapnel shells

War monuments. See Monuments

War news

Mobilizing news. C. E. Crane. II Sci Am 112: 134-5 F 6 '15

War orders. See War materials

War ships. See Warships

Ware, William Robert, 1832-1915

Sketch. A. D. F. Hamlin. por Am Inst Arch J 3:382-6 S '15

Warehouses

Carnegie steel co. warehouse opens at Boston. II plan Iron Tr R 56:620-2 Mr 25 '15

Carnegie steel company's Boston warehouse at Allston, Mass. II Iron Age 95:670-2 Mr 25 '15

Concrete warehouses and terminal plant at New Orleans will cover 100 acres. II plan Eng Rec 71:402-3 Mr 27 '15

Concreting plant for large Chicago warehouse. II plans Eng N 74:289-91 Ag 12 '15

Cotton warehouse and terminal at New Orleans. diag Eng N 73:1217 Je 24 '15

Design and construction of Midland warehouse, Chicago. II diag plans Eng & Contr 44:182-4 S 8 '15

Electrical installation in Seattle warehouse. Elec R & W Elec'n 67:895-6 N 13 '15

Electricity in large steel warehouses. II Elec R & W Elec'n 67:463-5 S 11 '15

Galveston Carnegie warehouse. E. C. Kreutzberg. II Iron Tr R 56:169-70+ Ja 21 '15

New steel and concrete structure to furnish nearly sixteen acres of floor space; Bingham warehouse in Cleveland. diag plan Eng Rec 72:356-7 S 18 '15

Warehouses—Continued.

- New steel warehouse of Joseph T. Ryerson & son, Jersey City. *Il Iron Age* 96:298-9 Ag 5 '15; *Iron Tr R* 57:270-1 Ag 5 '15
- Paving for piers, warehouses and garages. *plan Eng N* 73:952-4 My 13 '15
- Remodeled warehouse at St. Louis. *Il Iron Tr R* 57:90-1 JI 8 '15
- Reservoir effects in freight movements. R. H. Rogers. *Il Int Marine Eng* 20:107-9 Mr '15
- Retailing steel mill products. *Il plan Iron Tr R* 56:65-71 Ja 7 '15
- River-front approach to a Chicago building. *Il Eng N* 74:817 O 28 '15
- Structural features of a reinforced concrete combined storage warehouse and office building in Seattle. *diags Eng & Contr* 42: 446-51 N 11 '14
- Warehouse business requires speed. *Il Iron Tr R* 57:578-9 S 23 '15
- Wenter & Drechsler fireproof storage warehouse. *diags Brick* 23:294 D '14

See also Freight houses; Grain elevators

- Warm air furnaces. See Furnaces, Hot air
- Warm air heating and ventilating association, National. See National warm air heating and ventilating association

Warping machines

- Creel for warping machines. *Il Textile World* 50:186-7 N '15

Warren brothers co., Boston, Mass. :

- Organization and work of a national paving company. *Il Eng N* 73:712-16 Ap 15 '15

Warrents. See Pavements, Bitulithic**Warships**

- Applicability of electrical propulsion to battleships, together with the experience gained with it on the Jupiter: abstract. S. M. Robinson. *Int Marine Eng* 20:19-21 Ja '15
- Application of electricity in naval warfare. H. L. Hibbard. *Il Sibley J* 29:261-61 My '15
- Are obsolete battleships obsolete? *Sci Am* 112:356 Ap 17 '15
- Coaling United States warships. *Il diag Sci Am S* 79:276-7 My 1 '15
- Electrical equipment of a battleship. *Elec R & W Elec'n* 66:671-2 Ap 10 '15
- Electrical propulsion on battleships. *Int Marine Eng* 20:3 Ja '15
- Fighting efficiency of the "Iron Duke" and the "Kaiser." S. J. Mesher. *Sci Am* 113:79 JI 24 '15
- Formula for calculating the tactical value of fighting ships. A. Given. *Sci Am* 112:50 Ja 9 '15
- Launching data for a battleship: abstract. J. G. Tawressey. *Int Marine Eng* 20:9-11 Ja '15
- Naval lessons of the war. H. M. Kennard. *Sci Am* 112:478 My 22 '15
- "Pennsylvania" and "Queen Elizabeth." C. B. Gary. *Sci Am* 113:79 JI 24 '15
- Refueling warships at sea: abstract. S. Miller. *Int Marine Eng* 20:17-18 Ja '15
- Revolutionizing naval construction. *Sci Am* 113:286 O 3 '15
- Super-battle-cruiser. *Sci Am* 112:510 Je 5 '15
- Turbine-electric propulsion for battleships. *Eng Rec* 71:607 My 15 '15
- Warship types of the future. W. B. Chalfant. *Sci Am* 113:321 O 9 '15
- Warships of the future. *Engineer* 119:359-60 Ap 9 '15
- Which is the most powerful battleship? J. B. Walker. *Il diags Sci Am* 113:80-1 JI 24 '15
- See also Armor plate; Naval guns; Navies; Submarine boats; Tenders, Naval; Torpedo boat destroyers

Argentina

- Electrical equipment of the Argentine battleship Moreno. H. A. Hornor. *Il diags Am Inst E E Pro* 33:1543-68 O '14; Summary. *Elec W* 64:752-3 O 17 '14; Discussion. *Am Inst E E Pro* 34:679-84 Ap '15

Austria

- Austrian gun boats on the Danube. F. von Pills. *Il Sci Am* 113:299 O 2 '15

France

- French battleships Bretagne and Provence. *Il Int Marine Eng* 20:198-9 My '15

- New French battleship Tourville. M. K. Barnett. *Il diag Sci Am* 113:45 JI 10 '15
- New French battleships: trials of the Paris and France—launch of the Gascogne, Normandie and Flandre. *Il Int Marine Eng* 19:551-3 D '14

Great Britain

- Loss of the pre-dreadnought Bulwark. *Il Sci Am* 111:489 D 12 '14
- Super-dreadnought Queen Elizabeth at the Dardanelles. *plan Sci Am S* 79:289 My 8 '15

United States

- Keel of first electrically propelled battleship laid. *Elec W* 66:844 O 16 '15
- Largest battleship launched; the U. S. S. Pennsylvania. *Eng N* 73:556 Mr 18 '15
- Launching of the battleship Arizona. G. H. Barber. *Il diags Int Marine Eng* 20:334-6 Ag '15
- Reduction gears on the Pennsylvania. *Il diags Int Marine Eng* 20:339-40 Ag '15
- United States battleship California and class. *Sci Am* 113:63 JI 17 '15
- United States dreadnought Nevada. *Il Sci Am* 113:424 N 13 '15
- Warship construction in navy yards. P. F. Peterson. *Int Marine Eng* 20:178-9 Ap '15
- Washburn shops. See Worcester polytechnic institute
- Washed metal. H. D. Hibbard. *Il plan Am Inst Min E Bul* 108:2387-94 D '15
- Washing. See Laundry
- Washing machines, Electric
- Electric washer for use in stationary tubs. *Il Elec R & W Elec'n* 67:250 Ag 7 '15
- Electric washer with inclosed gearing. *Il Elec W* 66:488 Ag 28 '15
- Electric washer with vacuum agitator. *Il Elec W* 66:424 Ag 21 '15
- Horton electric washer. *Il Elec R & W Elec'n* 67:587-8 S 25 '15
- Johnson electric washer. *Il Elec R & W Elec'n* 66:744 Ap 17 '15
- New Dodge & Zull electric vacuum washer. *Elec R & W Elec'n* 66:740-1 Ap 17 '15
- White washing machine. *Il Elec R & W Elec'n* 67:442-3 S 4 '15
- Washington, D. C.
- McKim and the park commission. G. Brown. *Il plan Arch Rec* 33:381-9 D '15
- Washington plan and its progress. W. W. Harts. *Am Inst Arch J* 3:241-2 Je '15
- See also Ellen Wilson memorial homes

Architecture

- New building for the Bureau of engraving and printing. *Il diags Arch & Bldg* 46:463-70 D '14
- New post office. *Il Arch & Bldg* 46:423-9 N '14
- Old City Hall, Washington, D. C. H. F. Cunningham. *Il diag Arch Rec* 37:268-73 Mr '15

National museum

- Mineral-industry exhibit at the National museum. C. G. Gilbert. *Il Eng & Min J* 100:470-2 S 18 '15

Streets

- Analyses of asphaltic concrete and asphalt block laid in 1914. *Eng & Contr* 43:43 Ja 13 '15
- Bituminous concrete pavement construction in Washington. M. Brooke. *Il Eng & Contr* 43:325-6 Ap 7 '15
- Records of Washington's street cleaning. *Munic J* 33:654-5 My 13 '15

Water supply

- Water waste surveys in the District of Columbia. P. Lanham. *Il Eng & Contr* 43: 275-6 Mr 24 '15
- Washington (state)

Industries and resources

- Possible occurrence of oil and gas fields in Washington. C. El. Weaver. *Am Inst Min E Bul* 103:1419-27 JI '15; Discussion. 103:2481-3 D '15
- Washington university, St. Louis, Missouri
- Washington university, St. Louis. G. Study. *Il plan Arch Rec* 37:64-75 Ja '15

Waste. See Trade waste; Waste heat; Waste products, and references under that subject; Water waste

Waste fuel

Coke recovered from the cupola dump. W. J. Keep. Iron Tr R 56:382+ F 18 '15
Firing low-grade fuel and wastes. S. H. Bunnell. Power 41:378 Mr 16 '15

See also Fuel economy; Sawdust as fuel

Waste heat

Exhaust-gas heated boiler. G. Moore. diag Power 41:893 Je 29 '15

Heat energy from the Bessemer process. G. Butz. Iron Age 95:618-19 Mr 18 '15

Heater utilizing gas engine exhaust. diag Iron Age 96:413 Ag 19 '15; Same. Metal Work 84:317 S 3 '15; Same cond. Ind Eng 16:89 S '15

How to make steam from slag. W. L. Johnson. diag Iron Tr R 55:1189-40 D 17 '14

Recovery of heat losses in internal combustion engines; abstract. J. B. Merriam. diag Am Soc M E J 87:295-6 My '15

Reverberatory waste-heat boilers. L. Duncan. II diag Eng & Min J 99:153-3 Ja 16 '15

Utilization of waste heat for the generation of electrical energy. H. Hobson. diag Inst E E J 53:814-8 Je 15 '15

Utilizing waste heat in a drop forge shop: hot gases from furnaces used to generate steam. II diag plan Iron Age 95:45-7 Ja 7 '15

Waste-heat boilers. O. Monnett. diag Power 41:196-7 F 9 '15; Same. Eng & Min J 99:368-9 F 20 '15

Waste-heat boilers at Chrome. N. J. C. L. Brower. II diag Eng & Min J 99:892-5 My 22 '15

Waste-heat boilers in steel plants. C. J. Bacon. diag Iron Age 95:1349-52 Je 17 '15; Abstract. Iron Tr R 56:1123-4 Je 3 '15; Abstract. Power 42:27-8 JI 6 '15

Waste heat to stimulate plant growth. Sci Am 113:445 N 20 '15

See also Exhaust steam

Waste metal. See Metal waste; Scrap metal

Waste paper

Where waste newspapers go. Sci Am 111:471 D, 5 '14

Waste products

Baling waste paper, shavings and excelsior. B. J. Yungbluth. Elec Ry J 45:239 Ja 30 '15

Coal gas residuals—Feld process. F. H. Wagner. Am Gas Inst Pro 9:pt 1, 840-61 '14; Same cond. Am Gas Light J 101:305-9 N 16 '14; Same cond. Met & Chem Eng 12:698-703 N '14; Same cond. Sci Am S 80:316-19 N 13 '15; Discussion. Am Gas Inst Pro 9:pt 1, 361-7 '14

Experience gained in the treatment of the wastes from the scouring of wool. H. R. Crohurst and A. D. Weston. Eng & Contr 44:370-6 N 10 '15

Garbage and rubbish disposal in Los Angeles. S. C. Simons. II plan Munic J 38:799-803 Je 10 '15

Gas producers with by-product recovery. A. H. Lynn. II diag Am Soc M E J 37:253-66 My '15

Making fuel out of garbage. W. D. Hornaday. II Munic Eng 48:304-5 My '15

Modern reclamation plant and scrap yard. Ry R 57:281-4 Ag 28 '15

Power with by-product recovery. T. R. Wolaston. Engineer 112:326-7 Ap 2 '15; Same. Sci Am S 80:42-8 JI 17 '15

Pulp from cotton stalks. Sci Am 113:482 D 4 '15

Railway storekeepers' association: committee report. Ry Age 58:1039-41 My 21 '15

Reburning of lime from alkali waste and other forms of precipitated carbonate of lime. R. K. Meade. diag Met & Chem Eng 13:289-90 My '15

Reclaimed rubber. Engineer 120:428-9 N 5 '15

Utilization of cotton waste by German and Austrian methods. F. Nasmith. Textile World 49:sup251+ My '15

See also Blast furnace gas; Coke oven gas; Cotton waste; Fish waste; Flue dust; Metal waste; Refuse and refuse disposal; Scrap metal; Sewage sludge; Slag; Smelter fumes; Tar; Trade waste; Waste fuel; Waste paper; Wood ashes; Wood waste

Waste removal

Exhaust fan ratings and pipe diameters. Metal Work 83:721-2 My 21 '15

See also Dust removal

Watch springs

Watch spring testing apparatus. II Sci Am 111:494 D 12 '14

Watches

Electrical revolution counter and stopwatch. II Elec W 66:1105 N 13 '15

Lancaster's experience with time-inspection system. R. B. Hull. Elec Ry J 46:1034-5 N 20 '15

Use and care of a watch. Sci Am S 79:233 Ap 10 '15

Watch standards. A. J. Boardman. Elec Ry J 46:874-5 O 23 '15

See also Watch springs

Testing

Certified watches; a laboratory for testing watches at the Bureau of standards. L. W. Thavis. II Sci Am 113:83 JI 24 '15

Measurement of time and tests of timepieces. pl U S Bur Stand Circ 51:1-39 '14

Water

Chlorides in oil-field waters. C. W. Washburne. Am Inst Min E Bul 87:375-81 Mr '14; Discussion. 100:825-30 Ap '15

Density and volume of water; table. F. R. Low. Power 42:543-3 O 19 '15

Effect of the mineral content of water on canned foods. H. L. Huenink and E. Bartow. J Ind & Eng Chem 7:495-6 Je '15

See also Feed water; Hydraulic engineering; Hydraulics; Ice; Mine water; Mineral waters; Rain; Rivers; Sea water; Springs; Steam; Water supply, and other headings beginning Water; Waterways; Waves; Wells

Analysis

Chemical standards for the hygienic purity of public water supplies in Montana. W. M. Cobleigh. Eng & Contr 42:178 Ag 19 '14

Contributions of the chemist to the potable water industry. W. F. Mason. J Ind & Eng Chem 7:289-90 Ap '15

Determination of gases dissolved in waters and effluents. A. A. Swanson and G. A. Hulett. diag Am Chem Soc J 37:2490-500 N '15

Determination of sulfates in water by benzidine hydrochloride. F. W. Bruckmiller. J Ind & Eng Chem 7:600-2 JI '15

Examination of drinking water on railway trains. E. Bartow. Am Water Works Assn J 2:74-82 Mr '15

Laboratory control of water supplies. E. Bartow. II diag plan Am Water Works Assn J 1:720-6 D '14

Ortho-tolidin test for free chlorine. W. F. Monfort. Am Water Works Assn J 1:734-6 D '14

Perchloric method of determining potassium. C. Scholl. Am Chem Soc J 36:2085-9 O '14

Permanent cotton disc sediment records for water and sewage. G. C. Whipple and J. W. M. Bunker. Eng & Contr 42:420 O 28 '14

Use of silver nitrate as a testing agent. Int Marine Eng 20:35 F '15

Water analysis and the nitrogen content of water. W. M. Booth. Am Water Works Assn J 2:61-4 Mr '15

Bacteriology

Although chlorinated, B. coli increase in number. H. E. Jordan. Eng Rec 71:621-2 My 16 '15

Bacteriological standard for drinking water on common carriers. Eng Rec 70:617-18 D 5 '14; Eng N 72:1203 D 17 '14; Munic J 37:924 D 24 '14; Eng & Contr 43:77 Ja 27 '15; Am Water Works Assn J 2:67-73 Mr '15

Biochemical and engineering aspects of sanitary water supply. G. W. Fuller. J Fr Inst 180:117-61 JI '15

Columbus experts determine B. coli vagaries. Eng Rec 72:161-2 Ag 7 '15

Culture media employed for the bacteriological examination of water. H. M. Chamot and H. W. Redfield. Am Chem Soc J 37:1606-80 Je '15

Water—Bacteriology—Continued

- Culture media employed for the bacteriological examination of water; lactose-peptone media. E. M. Chamot and C. M. Sherwood. *Am Chem Soc J* 37:1949-59 Ag '15
- Incubator for testing water-chlorination results at Hudson Falls. N. Y. M. F. Tiernan. *Eng N* 72:1221 D 17 '14
- Object and limitations of bacteriological examination of water. W. H. Frost. *Eng & Contr* 42:260 S 9 '14
- Stripping water-works reservoirs. A. Hazen and G. C. Whipple. *Eng N* 73:858-60 My 6 '15
- Studies on the culture media employed for the bacteriological examination of water: the composition of the gases formed in lactose-peptone fermentation tubes. E. M. Chamot, C. M. Sherwood, and R. C. Lowary. *diags Am Chem Soc J* 37:2198-204 S '15
- Water-borne typhoid fever epidemic at Healdsburg, Cal. W. A. Sawyer. *Eng & Contr* 44:179-80 S 8 '15

Water, Distilled

- Distillation of water. G. W. McKee. *Il Am Gas Light J* 102:404-7-+ Je 28 '15
- Studies on water drinking; intestinal putrefaction as influenced by the ingestion of softened and distilled waters. C. P. Sherwin and P. B. Hawk. *Am Chem Soc J* 36:1779-85 Ag '14
- Studies on water drinking; the relation between water ingestion and the ammonia, phosphate, chloride and acid excretion. D. W. Wilson and P. B. Hawk. *Am Chem Soc J* 36:1774-9 Ag '14

Water, Underground

- Delusions about underground water. *Sci Am* 113:408 N 6 '15
- See also Mine water; Springs; Wells

Water aeration

- Aeration basin of the new water purification plant at Miraflores, Canal Zone. G. M. Wells. *Eng & Contr* 42:489-90 N 18 '14
- Temporary water aerator at the Kensico reservoir. W. F. Smith. *Il diags Eng N* 73:768-9 Ap 23 '15

Water birds

- Conserving the waterfowl. A. A. Allen. *Am For* 21:1047-8 N '15

Water closets

- Flushing valve design and installation. *diags Metal Work* 82:603-5, 710-11; 83:119-21, 157-9 N 6, 27 '14, Je 15-22 '15
- Local venting of plumbing fixtures. J. Graham. *diags Dom Eng* 71:60-2, 152-3 Ap 17, My 8 '15
- Water closet vent fittings. *Il Dom Eng* 72:145 JI 21 '15

See also Toilet rooms

Water columns

- Piping water columns. L. Marier. *Il Power* 42:727 N 23 '15
- Queer action in a water column. F. F. Jorgensen. *diag Power* 41:787-8 Je 8 '15
- Safety-first water column. *Il Power* 41:473 Ap 6 '15
- Visits of inspector Brown. J. E. Terman. *diag Power* 42:369-70 S 14 '15

Water companies

- Example of direct competition between publicly and privately owned water works plants in Tarentum, Pa. L. Hudson. *Eng & Contr* 44:162-3 S 1 '15
- State regulation of the operation of a small water works in Pennsylvania. *Eng & Contr* 43:103-4 F 3 '15

See also Water meters

Law

- New Jersey supreme court upholds decision awarding damages for illness contracted from drinking impure water supply. *Eng & Contr* 43:423-4 My 12 '15

Public relations

- Effective water works publicity measure at Terre Haute. *Eng & Contr* 44:161-2 S 1 '15
- Water works publicity measures employed at Terre Haute, Indiana. D. R. Gwinn. *Eng & Contr* 43:396-7 My 5 '15

Water conduits

- Arched reinforced-concrete conduits designed by the theory of least work. W. M. Smith. *Eng Rec* 71:648-52 My 22 '15; Discussion. 71:753 Je 12 '15
- Constructing a 70-mi. water conduit in Alaska. H. H. Hall. *Eng N* 74:233-4 JI 29 '15; Same. *Eng & Min J* 100:760-1 N 6 '15
- Construction of the Sooke gravity flow line at Victoria, B. C. *Il Concrete Cem* 6:299-300 Je '15
- Design and methods and cost of constructing the Los Angeles city trunk line, connecting aqueduct to distribution system. B. A. Heinly. *Il diags Eng & Contr* 43:390-4 My 5 '15
- Design features of Cottonwood conduit and new concrete settling basin at San Diego. *diags Eng & Contr* 43:186-8 F 10 '15
- Fall River mills will benefit by \$3,000,000 water and sewerage project. *diag Eng Rec* 72:501-3 O 23 '15
- Hydraulics of irrigation, drainage, and other channels. L. Schmeer. *Eng & Contr* 42:234-90 S 23 '14
- New water-conservation scheme at Fall River, Mass. *diag Eng N* 74:760-1 O 14 '15
- Pipe tunnel backfilled through auger holes. *Il diags Eng Rec* 71:715 Je 5 '15
- Plan for condensing-water supply for Fall River, Mass. H. S. Knowlton. *plan Power* 43:643-4 N 9 '15
- Reinforced-concrete conduit analysis simplified by theory of displacements. C. S. Whitney. *Eng Rec* 72:486-8 O 16 '15
- Table of circular and horseshoe conduit sections. *Eng N* 73:1182-3 Je 17 '15

See also Aqueducts; Flumes; Water pipes; Water supply engineering

Water conservation. See Water laws and legislation

Water consumption

- Meters cut Omaha's water consumption 20 per cent. *Eng Rec* 71:712 Je 5 '15
- New Orleans water consumption. *Munic J* 39:255-6 Ag 19 '15
- Procedure at Kalamazoo, Mich., in case of excessive meter registration. *Eng & Contr* 44:387 N 17 '15
- Report of committee on water consumption. American water works association, 1913-1915. *Am Water Works Assn J* 2:181-99, 280-3 Mr-Je '15

See also Water meters; Water waste

Water cooling. See Cooling towers

Water distillation. See Distillation

Water drinking

- Studies on water drinking; intestinal putrefaction as influenced by the ingestion of softened and distilled waters. C. P. Sherwin and P. B. Hawk. *Am Chem Soc J* 36:1779-85 Ag '14
- Studies on water drinking; the relation between water ingestion and the ammonia, phosphate, chloride and acid excretion. D. W. Wilson and P. B. Hawk. *Am Chem Soc J* 36:1774-9 Ag '14

Water flow

- Color used in hydraulic tests of power plants. R. Taylor. *diags Eng N* 74:617-20 S 23 '15
- Current meters for measuring flow in pipes. H. P. Boardman. *Eng N* 73:1180 D 10 '14
- Diagram for estimating flow in channels and conduits. G. D. Fish. *Eng N* 73:732-4 Ap 15 '15
- Diaphragm method for the measurement of water in open channels of uniform cross-section. C. R. Weidner. *bibliog Il Wis U Bul Eng S* 8:1-72 no 1 '14; Excerpts. *Eng N* 72:532-4 S 10 '14; *Eng & Contr* 42:414-15 O 23 '14
- Discharge of water through nozzles. F. W. L. Peables. *Eng Rec* 70:837 D 12 '14
- Experiments on the flow of sand and water through spigots. R. H. Richards and B. Dudley, Jr. *diags Am Inst Min E Bul* 97:67-72 Ja '15; Same cond. *Met & Chem Eng* 13:120 F '15; Discussion. *Am Inst Min E Bul* 101:1122-3 My '15
- Flow over weirs with imperfect contractions. G. J. Davis, Jr. *diags plan Wis U Bul Eng S* 8:77-145 no 2 '14

Water flow—Continued.

- Harrison weir-flow recorder. *Il Eng & Min J* 100:544 N 20 '15
- Hydraulic jump. In open-channel flow at high velocity; abstract. K. R. Kennison. *Am Soc M E J* 37:455 N '15
- Investigation of flow through four-inch submerged orifices and tubes. L. R. Balch. *diags Wis U Bul Eng S* 8:151-77 no 3 '14
- Methods employed in determining hydraulic elements of unlined water tunnel at Rio Janeiro. R. S. Wark. *diag Eng & Contr* 44:75-6 J1 23 '15
- New type of flow recorder. *Il Heat & Ven* 12:52-3 Ag '15
- Recent tests on flow of water acted on by a propeller; abstract. Flamm. *Am Soc M E J* 37:559 S '15
- Recorder for measuring flow over weirs. *Il Ry Age (Mech ed)* 89:433 Ag '15; *Elec W* 66:605-6 S 11 '15
- St. Louis engineers test filter controllers. *diag Eng Rec* 72:284-5 S 4 '15
- Salt solution test shows turbine efficiency of 93 per cent at Holtwood plant. *Il diags Eng Rec* 71:358-60 Mr 20 '15
- Stream gaging by titration; comparative tests of new chemical and standard mechanical methods of gaging stream flow. L. W. Collet, R. Mellet and O. Lüttsch. *diag plans Eng & Contr* 42:270-3 S 16 '14
- Testing water-main flow. R. C. Hardman. *Eng N* 74:348 O 28 '15
- Tests of a proportional weir. *Il Eng N* 74:1018-19 N 25 '15
- See also Hydraulics; Pitometer; Stream flow; Stream measurement; Venturi meters; Water measurement; Weirs
- Water gage cocks**
Water gage cocks. P. R. Duffey. *diags Ry Age (Mech ed)* 89:136 Mr '15
- Water gages**
Hydro-chronograph for recording water levels. *Il Munic J* 39:237-8 Ag 12 '15
- Mercury column alarm for standpipes successfully employed at Ripon, Wis. W. E. Haseltine. *diag Eng & Contr* 43:560-1 Je 23 '15
- Pressurized water gage. *Il diags Power* 41:157 F 2 '15
- Reservoir indicating gage. T. K. Lee. *diag Power* 41:755 Je 1 '15
- Safe guard gage glass reflector. *Il Power* 41:835 Je 22 '15
- Simple water-level indicator. H. K. Willson. *diag Power* 42:423-4 S 21 '15
- Water level indicator for tanks. *diag Iron Age* 96:578 S 9 '15
- Water-tank controlling device. *plans Power* 41:680 My 18 '15; Same. *Eng & Min J* 99:805 My 22 '15; Same. *Eng & Contr* 44:860 N 3 '15
- Water gas.** See Gas, Water
- Water gates.** See Floodgates
- Water hammer**
Causes and prevention of water hammer. *Elec W* 65:1686 Je 19 '15
- Draft-tube water-hammer. J. B. Crane. *diag Power* 41:789-90 Je 8 '15
- Temperature change or water hammer—which? W. Roberts. *diag Power* 42:687 N 9 '15
- Water heaters**
Explosion of a small hot water heater in a garage. *Il Locomotive* 30:170-2 Ap '15
- Hotstream gasoline water heater. *Il Dom Eng* 72:350 S 18 '15
- Range boiler water heater. *Il Metal Work* 84:224 Ag 13 '15
- See also Electric water heaters; Feed water heaters; Gas water heaters; Hot water supply
- Water heating**
See also Feed water heating; Hot water supply; Water heaters
- Water hemlock (cicuta)**
Cicutoxin; the poisonous principle in water hemlock (cicuta). C. A. Jacobson. *Il Am Chem Soc J* 37:916-34 Ap '15
- Water hyacinth**
Removing and utilizing the water hyacinth. *Eng N* 73:905 My 6 '15
- Water in organic compounds**
Qualitative test for water by the use of the acetylene-cuprous chloride reaction. E. R. Weaver. *Am Chem Soc J* 36:2462-8 D '14
- Water laws and legislation**
Recent legislation for water conservation reviewed and criticised. M. Knowles. *Eng Rec* 72:488-9 O 15 '15
- See also Water pollution; Water rights
- Water mains.** See Water pipes
- Water measurement**
Electric well-sounding instrument. L. W. Stocker. *diags Eng N* 73:444-6 Mr 4 '15
- Liquid weigher improved. J. W. Loef. *diags Power* 41:687-8 My 18 '15
- Measuring devices for irrigation water tested at the Davis Field laboratory, University of California. *diags Eng & Contr* 43:248-53 Mr 17 '15
- Measuring well-water levels under difficulties. H. W. Keith. *diags Eng N* 74:1037 N 25 '15
- See also Water flow; Water gages; Water meters; Weirs
- Water meters**
Cincinnati to sell all water by meter in four years. *Eng Rec* 72:254 Ag 28 '15
- Clark water meter coupling yoke. *Il Eng & Contr* 44:154 Ag 25 '15
- Compound water meter for accurate measurement of large and small flows. *Il Eng & Contr* 43:525-6 Je 9 '15
- Considerations to be borne in mind in purchasing water meters. *Eng & Contr* 44:811 O 20 '15
- Current meters for measuring flow in pipes. H. P. Boardman. *Eng N* 72:1180 D 10 '14
- Curtailment of water waste and selection of meters at Milwaukee water works. *Eng & Contr* 42:176 Ag 19 '14
- District heating: velocity steam meters and water meters. S. M. Bushnell and F. B. Orr. *Il diags Heat & Ven* 13:41-3 Mr '15
- Experiences in metering the city of Boston. J. A. McMurray. *Eng & Contr* 43:425-6 My 12 '15
- Experiences of a city of 6,000 population with water waste, fountains, meters and rates. C. J. Renner. *Eng & Contr* 43:54-6 Ja 20 '15
- Improvements in V-notch meter. *Il Power* 41:807 Je 15 '15
- Increasing precision in pitometer survey work at Washington, D. C.—meter reading. *Eng & Contr* 43:26 Ja 13 '15
- Laboratory for investigating and testing liquid flow meters of large capacity; abstracts. W. S. Gale. *Il diag Am Soc M E J* 37:165-9 Mr '15; *Power* 41:69-71 Ja 12 '15; Discussion. *Am Soc M E J* 37:169-70 Mr '15
- Measurements for the household. *Il U S Bur Stand Circ* 55:102-7 '15
- Measuring boiler feed water. *diag Elec Ry J* 46:284 Ag 14 '15
- Meter for recording flow over weirs. *Il Iron Age* 96:807 Ag 5 '15
- Meter maintenance systematized by water-works department in Milwaukee. *Il Eng Rec* 71:587-8 My 8 '15
- Meterage at Pasadena, California. *Eng & Contr* 44:359-60 N 3 '15
- Meters set in 1914; tabulation. *Munic J* 33:554-7 Ap 21 '15
- Notes on meterage from various cities. *Eng & Contr* 42:209-10 Ag 26 '14
- Oscillating piston water meter. *Il Eng & Contr* 44:96-7 Ag 4 '15
- Ownership of meters. *Am Water Works Assn J* 2:555-68 S '15
- Popularizing the water meter at Columbus, O. *Eng & Contr* 44:343-4 S 29 '15
- Power of municipalities owning waterworks to compel consumers to install and pay for water meters—court decisions. J. Simpson. *Munic J* 37:920-1 D 24 '14
- Pros and cons of private ownership of water meters. *Eng & Contr* 44:81-2 Ag 4 '15
- Question box: Do water meters increase or decrease cost of water supply to consumers? *Am Water Works Assn J* 1:637-8 D '14
- Question box: How is the cost of installation and maintenance of meters borne? *Am Water Works Assn J* 1:638-48 D '14
- Question box: Over-registration of meters? Should meters register cubic feet or gallons? *Am Water Works Assn J* 1:663-8 D '14

Water meters—Continued.

Question box: Straight line reading meters—are they preferable to clock dial meters? *Am Water Works Assn J* 1:667-62 D '14

Question box: What is the average life of a water meter? *Am Water Works Assn J* 1:676-7 D '14

Recording power plant operations. *J. C. Smallwood. II diag Eng N 49:818-36 S '15*

Report of committee of American water works association on standard fittings for water meters. *Am Water Works Assn J* 2:283-6 Je '15; *Same. Eng & Contr* 43:522-3 Je 9 '15

Results of meterage at Columbus, Ohio, with special reference to restriction of waste in lawn sprinkling. *J. O'Shaughnessy. Eng & Contr* 43:190-1 Mr 3 '15

Shop equipment and motor trucking costs, meter division of Milwaukee water works. *Eng & Contr* 43:384-5 Ap 14 '15

Specifications governing purchase of water meters of disc type at San Diego, Cal. *Eng & Contr* 42:291 S 23 '14

Waste prevention by individual meters versus district meters. *R. O. Wynne-Roberts. Am Water Works Assn J* 2:397-400 Je '15; *Same. Eng & Contr* 44:32-3 Jl 14 '15

Water-meter pits, Milwaukee water-works. *diag Eng N 73:1082 Je 8 '15*

Water meters in La Grange, Ga. *G. H. Sargent. Munic J* 39:223 Ag 12 '15

When is a meter a meter and when not a meter. *A. W. Burgess. Dom Eng* 73:78-9 O 16 '15

See also Pitometer; Venturi meters; Water measurement

Repair

Question box: Is it better to maintain a meter repair department, or send meters to the manufacturers? *Am Water Works Assn J* 1:678-9 D '14

Testing

Clark water meter tester. *II Eng & Contr* 44:154 Ag 25 '15

New rating flume for current meters, Bureau of standards. *II Eng N 73:1127 Je 10 '15*

Refinements in water meter testing in New York city. *F. B. Nelson. Eng & Contr* 44:339 O 27 '15

Testing large water meters. *II diag Eng N 74:654 S 30 '15*

Water pipes

Allowable leakage from cast iron water mains; abstracts. *El. C. Bradbury. Eng & Contr* 42:499-500 N 25 '14; *Eng Rec* 70:330-1 S 19 '14; *Eng N* 72:785 O 8 '14; *Munic J* 38:251-2 F 25 '15

Argument for the ownership of water services by the utility. *M. L. Cooke. Eng & Contr* 44:386-7 N 17 '15

Bowl outlets reduce velocities at pipe-line ends. *II diag Eng Rec* 72:41 Jl 10 '15

Cast-iron pipe makes good record in Galveston storm. *A. T. Dickey. II Eng Rec* 72:607 N 13 '15

Covering protects large penstocks from freezing; cement-mortar coating supported by special steel frame around pipe and reinforced with wire mesh. *H. G. Huber. II diag Eng Rec* 71:269 F 27 '15

Data and discussion on leakage from cast iron water mains. *J. W. Ivy. Eng & Contr* 43:568-9 Je 30 '15

Data on the life of wooden pipe pertaining to 79 pipe lines. *D. C. Henny. tables Eng & Contr* 44:127-30 Ag 18 '15; *Same. Eng N* 74:400-3 Ag 26 '15; *Excerpt. Eng Rec* 72:162 Ag 7 '15; *Excerpt. Eng & Min J* 100:476 S 18 '15

Economic considerations justify wood-stave pipe for water-power penstocks; comparison with steel. *R. E. Horton. Eng Rec* 71:356-8 Mr 20 '15

Experiences with leadite for jointing cast iron water mains. *H. A. Symonds. Eng & Contr* 44:247-8 S 29 '15

Experiences with machine banded wooden water pipe in New Hampshire; abstracts. *A. W. Dudley. II Eng & Contr* 44:225-4 S 22 '15; *Munic J* 39:471-2 S 23 '15

Field and office methods in connection with the laying and repair of large water mains at San Diego, Calif. *W. W. Albin. Eng & Contr* 43:26-7 Ja 13 '15

Flexible bronze tubing of the Partridge Island pipe line. *II diag map Eng N 73:1167-8 Je 17 '15*; *Same cond. Am Gas Light J* 103:42 Jl 19 '15

48-inch cast iron force main for Atlantic City, New Jersey. *L. Van Glider. II Am Water Works Assn J* 1:704-8 D '14; *Same. Eng & Contr* 43:77 Ja 27 '15

Good practice in pipe line construction for high-head hydroelectric plants. *J. P. Jollyman. Eng & Contr* 44:180-1 S 8 '15

How to make good joints in cast iron water mains with leadite. *W. C. Hawley. Eng & Contr* 44:200-2 S 15 '15; *Same cond. (Experiences in calking joints of water mains) Eng Rec* 72:326 S 11 '15

Joint details in high-head pipe lines—data on pipe lines throughout the world. *L. C. Frohriebe. II Eng & Contr* 44:77-8 Jl 28 '15

Locating pipes on water system. *C. E. Davis. Metal Work* 84:78-9 Jl 16 '15

Longer cast-iron pipe. *Eng N* 73:898-9 My 6 '15

Lowering mains under pressure and cost of laying water mains at San Diego. *II Eng & Contr* 42:419-20 O 23 '14

Method and cost of constructing a 6-mile water main, of 3-in. screwed pipe, for New Orleans Lake Shore land co. *A. M. Shaw. Eng & Contr* 43:223 Mr 10 '15

Method of protecting water lines from freezing. *diag Elec W* 66:920 O 23 '15

Opening headgate causes penstock surges. *W. D. Spengler. plan Eng N* 74:507 S 9 '15

Penstock carries 5,412-ft. head. *diag Eng N* 74:822 O 23 '15

Practical procedure in designing steel penstocks. *V. P. Marran. II diag Eng Rec* 71:355-6 Mr 20 '15

Protecting water mains from frost. *II Metal Work* 84:101 Jl 23 '15

Question box: Experience with lead or tin lined iron pipe; comparative efficiency, life and cost? *Am Water Works Assn J* 1:648-50 D '14

Recording the locations of water-main gate valves. *map Eng N* 73:892-3 My 6 '15

Records of service of cast-iron water pipe. *II Eng N* 73:487 Mr 11 '15

Rochester, N. Y., effects saving by using odd-diameter pipe. *Eng Rec* 73:393-4 S 25 '15

Service pipes. *Am Water Works Assn J* 2:550-3 S '15

Subaqueous pipe taken up and replaced 3 feet lower. *El. M. Blake. Eng Rec* 72:69-70 Jl 17 '15

Water supply main for Atlantic City, N. J. *II Munic Eng* 47:445-7 D '14

Water-works service pipes. *Eng N* 72:1185-6 D 3 '14

See also Aqueducts; Hot water heating; Pipe joints; Pipe laying; Pipes; Siphons; Thawing; Water flow; Water hammer; Water waste; Waterworks

Cleaning

Cleaning a city's water mains. *J. F. Springer. II Sci Am* 112:38 Ja 23 '15

Cleaning a water-supply main at Merced, Calif. *II Eng N* 74:155 Jl 22 '15

Cleaning of water mains. *J. F. Springer. II Munic Eng* 48:2-7 Ja '15

Notes on scraping a 15in. trunk main at Batley; abstract. *J. C. Barrowclough. Engineer* 118:588 D 13 '14

Cost

Costs of 12- and 16-ft. lengths of cast-iron pipe laid. *F. C. Roberts. Eng N* 74:641 S 30 '15

Data on comparative cost of maintaining and renewing wooden and steel pipe at Seattle. *L. B. Youngs. Eng & Contr* 44:178-9 S 8 '15

Economy of large water mains with table of comparative cost per foot for different water pipe sizes. *N. S. Hill. Eng & Contr* 48:374 Ap 28 '15

Waterworks practices and costs. *Munic J* 39:148 Jl 29 '15

Water pipes—Continued

Failures

- Causes of breaks in large water mains in Chicago. C. E. Fitch. diag Eng & Contr 42:416-19 O 28 '14
- Failure of 60-in. water main at Cincinnati by longitudinal compression. J. W. Alvord. diag plan Eng & Contr 43:148-50 F 17 '15; Same cond. Eng Rec 71:588-9 My 8 '15; Excerpt. Eng N 73:407-8 F 25 '15
- Forty-eight inch cast-iron pipe breaks in New York. II Eng Rec 71:757-8 Je 12 '15
- 48-in. water-main break. II Eng N 73:1148 Je 10 '15
- Impact of street cars breaks large water main. II Eng Rec 71:183 F 6 '15
- Misnap to Seattle municipal plant. II Elec W 65:902-3 Ap 10 '15
- New theory of cast-iron water main breaks. F. M. Aguirre. diag Eng Rec 72:116 JI 24 '15
- New theory of cast-iron water main breaks. H. J. Weierhauser. Eng Rec 72:86 JI 17 '15
- Penstock breaks cripple Seattle power plant. II Eng Rec 71:471 Ap 10 '15
- Pipe joint fails by pulling out at elbow. II Eng Rec 72:390 S 25 '15
- Sixty-seven breaks in a cast-iron water main. C. E. Davis. map Eng N 74:244-5 Ag 5 '15
- Surface warnings of street subsurface failures. R. Klotz. Eng N 74:831 O 28 '15
- Vacuum wrecks pipe line. II Metal Work 84:217 Ag 13 '15

Leakage

See Water waste

Repair

- Diver repairs parted intake line at Evanston. Eng Rec 72:49 JI 10 '15
- Five 4-foot water mains underpinned after break. diag Eng Rec 72:7-8 JI 3 '15
- Laying and repairing water mains. W. W. Albin. Metal Work 84:103 JI 23 '15
- Methods employed in repairing a submerged water main at Edmonton, Alberta. J. Hamilton. diag Eng & Contr 44:387 N 17 '15
- Repairing a split water main. II Eng N 74:847 O 28 '15
- Repairing leaks in flexible jointed water main in 40 ft. of water, Galveston harbor, Texas. N. T. Blackburn. diag Eng & Contr 42:163-4 Ag 12 '14
- Utilizing hydraulic principles to locate a leak in a submerged pipe. E. G. Hooper. Eng & Contr 44:261-2 O 8 '15

Testing

- Pressure test shows little leakage from huge molded concrete pipe. II Eng Rec 72:537-8 O 30 '15
- Testing water-main flow. R. C. Hardman. Eng N 74:848 O 28 '15

Water pollution

- Buffalo sewage disposal and water-supply in relation to the pollution of the Great Lakes. Eng N 73:8-9 Ja 7 '15
- Contamination of a drinking and railroad water supply by sea water and the removal of the salt water from the reservoir. J. E. Downes. Am Water Works Assn J 1:709-14 D '14
- Court forbids river pollution by filter wash-water. Eng Rec 72:160-1 Ag 7 '15
- Establishing and enforcing a British standard for sewage effluents. Eng N 72:1325 D 31 '14
- Good water for farm homes. Sci Am S 80:57 JI 24 '15
- Leaky check valve between public and contaminated industrial water supplies at Circleville, O., causes typhoid outbreak. W. H. Dittoe and F. G. Boudreau. Eng & Contr 43:177 Ag 19 '14
- Legal decision in a water supply pollution case. J. W. Ackerman. Am Water Works Assn J 1:688-98 D '14
- New Jersey supreme court upholds decision awarding damages for illness contracted from drinking impure water supply. Eng & Contr 43:422-4 My 12 '15
- Pollution of California water supply wells by discharges from sewage wells. C. G. Hyde. Eng & Contr 44:340 O 27 '15

- Pollution of public water supplies through connections to industrial supplies. L. H. Van Buskirk. Eng & Contr 43:219-22 Mr 10 '15
- Pollution of rivers. II Munic J 39:75-6 JI 15 '15
- Surface drainage a controlling factor in stream pollution. G. H. Norton. Eng & Contr 44:327-8 O 27 '15
- Treatment of District of Columbia sewage. A. E. Phillips. Eng Rec 72:506 O 23 '15
- Troubles from abnormally high coloring in Rhode Island water supplies. S. D. Gage. Eng & Contr 44:356-7 N 3 '15
- U. S. public health service. H. P. Letton. Munic J 38:220 F 18 '15
- Water analysis and the nitrogen content of water. W. M. Booth. Am Water Works Assn J 2:61-4 Mr '15
- Water-borne typhoid fever epidemic at Healdsburg, Cal. W. A. Sawyer. Eng & Contr 44:179-80 S 8 '15
- Water pollution enjoined at Niagara Falls. Eng N 74:232 JI 29 '15
- Water-typhoid suit lost. Eng N 74:631-2 S 30 '15

See also Sewage; Water purification; Water supply

Water power

- Business engineering problem in water power development with the solution for a specific case. W. V. N. Powelson. Eng & Contr 43:222-6 Mr 10 '15
- Comparative water power resources and utilization of European countries, Canada and the United States. Eng & Contr 43:156 F 17 '15
- Conditions that will encourage hydroelectric development. J. A. Britton. Elec W 64:1236-8 D 28 '14
- Damages for loss of water power; abstracts. F. W. Dean. Am Soc M E J 37:174-6 Mr '15; Power 40:903 D 22 '14
- See also Dams; Flumes; Hydraulic engineering; Hydraulic machinery; Hydroelectric plants

Alabama

- Future of water-power development in Alabama. T. W. Martin. Elec R & W Elec'n 67:850-1 N 6 '15

California

- California agreement on water power development of national forests. Power 40:867-8 D 15 '14

Canada

- Canadian hydraulic power. C. H. Mitchell. Power 42:596-7 O 26 '15

Idaho

- Water power and its relation to irrigation in southern Idaho. J. C. Beebe. II Assn Eng Soc J 54:63-78 F '15

Illinois

- Report on water-power development on the Chicago drainage canal. Eng N 72:1139 D 3 '14

New England

- Water powers of New England. H. I. Harri-man. II Gen Elec R 18:368-65 My '15; Abstract. Elec W 65:761-2 Mr 20 '15

Norway

- Norwegian waterfall concessions. Power 41:781 Je 8 '15
- Water powers in Norway; abstract. Elec W 66:986 O 30 '15

Russia

- Russia's power resources; extensive water falls and peat deposits await exploitation. maps Eng M 49:909-12 S '15

Switzerland

- Water-powers of Switzerland. Elec W 66:250 JI 31 '15

United States

- Bill to open the way for water-power development. Eng N 73:131-2 Ja 21 '15
- Census of primary power equipment. Eng Rec 71:136 Ja 30 '15

Water power—United States—Continued

- Development of water power on public lands. Eng Rec 71:75-8 Ja 16 '15
- Failure of water-power legislation. H. L. Cooper. Elec W 65:700 Mr 13 '15
- Federal and state control of water-power: California and Oregon. L. Lundgren. Il Elec W 66:336-8 Ag 14 '15; Same cond. Power 42: 157-8 Ag 3 '15; Same cond. Eng N 74:600-1 S 23 '15
- Ferris bill at water power conference assailed. Eng Rec 72:429-4 O 2 '15
- Intermittent waterfall; using the power of Niagara falls without impairing its scenic beauty. E. Dunn. Il Sci Am 113:492-3+ D 4 '15
- Irretrievable waste of conservation. Elec W 66:511-12 S 4 '15
- Merging hydro-electric interests. Power 41: 631-2 My 13 '15
- National conservation and water powers. H. H. Chapman. Il Am For 21:981-6 O '15
- No federal curb on western power development. O. C. Merrill. Eng N 74:873-5 N 4 '15
- Obstructive legislation: attempting to defeat the Ferris water-power bill. Power 41:123-30 Ja 26 '15
- Senate committee told water-power bill would retard development. Elec W 65:54-7 Ja 2 '15
- Testimony of Mr. Sidney Z. Mitchell on the water-power bill. Elec W 65:187-9 Ja 16 '15
- Testimony on water-power bill. G. Pinchot; P. M. Lincoln. Elec W 65:131 Ja 9 '15
- Water-power bills before Congress. Power 41: 72-3 Ja 12 '15
- Water-power legislation: Adamson and Ferris bills. Power 41:57-8 Ja 12 '15
- Water-power utilization in the West considered by governors. Elec R & W Elec'n 67:482-3 S 11 '15
- Western conference on state control of water-power. Elec W 66:682, 734-6 S 25-O 2 '15
- Western water-power conference favors state rights. Power 42:531 O 12 '15
- West's water powers. Eng Rec 72:405 O 2 '15
- Water power electric plants. See Hydroelectric plants
- Water pressure**
- German studies of uplift pressure on masonry dams. R. Schaefer. diag Eng & Contr 44: 218-31 S 22 '15
- Percolation and upward pressure of water; abstract. W. A. Mitchell. Am Soc M E J 37:121-2 F '15
- Water purification**
- Air-bound filters. R. S. Weston; J. W. Ellms. Eng Rec 72:458 O 9 '15
- Air-bound filters the chief difficulty in operating Wilmington's water purification plant. E. M. Hoopes, jr. Il plans Eng Rec 72:282-4 S 4 '15
- Akron's water purification plant. diag Munic J 38:725-8 My 27 '15
- Automatic liquid-chlorine water disinfecting plant at Stamford, Conn. J. A. Newlands. Il Eng N 73:1158-9 Je 17 '15
- Bubbly creek filter plant adopts liquid chlorine treatment. C. A. Jennings. Am Water Works Assn J 2:401-3 Je '15; Same. Eng N 73:555 Mr 18 '15; Same. Eng Rec 71:338 Mr 13 '15
- Camp engineering—water purification. Sci Am S 73:383 Je 12 '15
- Cincinnati plant has eliminated water-borne typhoid. Eng Rec 72:336 S 11 '15
- Circulating water screens. H. Addison. diag Engineer 120:202 Ag 27 '15
- Collapsible hypo plant packed in a trunk. Il diag Eng Rec 71:373 Mr 20 '15
- Columbus waterworks makes its own alum—a revolutionary step in water purification practice. C. P. Hoover. Il plan Eng Rec 71: 576-7 My 8 '15; Same. Eng & Contr 43:448-9 My 19 '15
- Contributions of the chemist to the potable water industry. W. P. Mason. J Ind & Eng Chem 7:289-90 Ap '15
- Cost and efficiency data on water purification at Erie, Pa., during early months of operation. Eng & Contr 44:160-1 S 1 '15
- Design features of the Montebello water filters, Baltimore, Md. Il Eng & Contr 44:198-9 S 15 '15
- Development of ultra-violet water disinfection. Il diag Eng N 74:634-6 S 30 '15
- Disinfecting large public water supplies. T. Horton. Metal Work 84:40-1 Jl 9 '15
- Disinfecting Sacramento's water supply—temporary plant for introducing chlorine gas. Il Munic J 38:564 Ap 22 '15
- Dry-feed apparatus solves Itasca's coagulant problem. H. N. Ogden. Il plan Eng Rec 71: 686-7 My 8 '15
- Dry feed of chemicals in water purification. W. F. Monfort. Am Water Works Assn J 2:200-5 Mr '15; Discussion. 2:315-16 Je '15
- Effect of filtration and sterilization on typhoid fever in Philadelphia. F. D. West. Munic J 39:111-12 Jl 23 '15
- Efficiency of the liquid chlorine sterilization plant at Wakefield, Mass.; abstracts. E. C. Sherman. Il Eng & Contr 44:410 N 24 '15; Munic J 39:811 N 25 '15
- Excess lime method of water purification. Engineer 120:128 Ag 6 '15
- Household water sterilization with hypochlorite of lime. Eng & Contr 43:572 Je 30 '15
- Hypochlorite treatment at Ludington. G. W. Clark. plan Munic J 38:394 Mr 25 '15
- Kinks in the control of hypochlorite at Denver. W. W. De Berard. Il Am Water Works Assn J 2:442-5 Je '15; Same. Eng Rec 71:393-4 Mr 27 '15
- Liquid chlorine sterilization of the water supply of St. Catharines, Ontario. A. Milne. Il plan Eng & Contr 43:188-90 Mr 3 '15
- Marysville, Kan., filters handle excessively turbid water. C. C. Young. Eng Rec 72:290-1 S 4 '15
- New water filtration plant at Quincy, Ill. W. R. Gelston. Il diag Am Water Works Assn J 2:446-52 Je '15; Same. Munic Eng 48: 297-8 My '15; Discussion. Am Water Works Assn J 2:452-4 Je '15
- Novel, simple method of applying liquid chlorine under pressure. J. W. Ledoux. Eng & Contr 43:519 Je 9 '15
- Observations of some European water purification and sewage disposal plants. E. Bartow. Il Am Water Works Assn J 2:13-24 Mr '15
- Operations of the Cincinnati water-filtration plant for 1914. J. W. Ellms. Il Eng N 73: 854-6 My 6 '15
- Ozone treatment for drinking water. Il Engineer 120:371 O 15 '15
- Prevention of weed growth in water supply reservoir by coppering. Eng & Contr 43:572 Je 30 '15
- Production and application of ultra-violet rays, particularly for water purification. M. von Recklinghausen. Il diag Assn Eng Soc J 54:101-9 Mr '15
- Purification of water by the ultra-violet rays. M. von Recklinghausen. Il diag Am Water Works Assn J 1:565-84 S '14; Same. Sci Am S 79:10-12 Ja 2 '15; Discussion. Am Water Works Assn J 1:585-8 S '14
- Purifying drinking water on the field. Sci Am S 80:288 O 30 '15
- Relative efficiency of liquid chlorine and hypochlorite of lime. F. E. Hale. Eng & Contr 43:173-4 F 24 '15
- Rotary screens remove macro-organisms from Denver's lake water supply. Il Eng Rec 72: 291-2 S 4 '15
- Senfrot chemical injector. diag J Ind & Eng Chem 7:354 Ap '15
- Seven years' successful operation of double sand filtration plant at South Norwalk, Conn., in removal of objectional tastes and odors. H. W. Clark. Eng & Contr 44:262-3 O 6 '15
- Small waterworks revamped under service; rapid sand filters and new pumping station constructed at Painesville, Ohio. G. W. Knight and R. F. MacDowell. plan Eng Rec 72:287-8 S 4 '15
- Sterilization of water by ultra-violet rays of the mercury-vapor quartz lamp. M. von Recklinghausen. diag Am Inst E E Pro 33: 1049-62 Je '14; Same cond. Eng M 47:758-8 Ag '14; Abstract and discussion. Elec R & W Elec'n 65:33-4 Jl 4 '14; Discussion. Am Inst E E Pro 33:1906-12 D '14
- Sterilization of water-supplies for troops on active service. G. S. Woodhead. Sci Am S 79:292-3 My 8 '15

Water purification—Continued.

- Sterilizing water with ultra-violet light; abstract. *diag Elec W* 66:820 O 9 '15
- Ultra-violet rays and their application for the sterilization of water. M. von Recklinghausen. *II diag J Fr Inst* 178:681-704 D '14
- Uniformity in compiling and reporting statistics of water purification plants. *Eng & Contr* 42:332-3 O 7 '14
- Use of copper sulfate in the purification of swimming pools. S. J. Thomas. *J Ind & Eng Chem* 7:496-9 Je '15
- Use of liquid chlorine at Buffalo water-works intake. H. F. Wagner. *II plan Eng N* 73:856-7 My 6 '15
- Variations in practice disclosed by water sterilization statistics; status of hypochlorite and liquid chlorine methods of treatment. F. F. Longley. *Eng Rec* 71:291-2 Mr 6 '15; Summary. *Eng N* 73:459 Mr 4 '15
- Water borne typhoid in Sacramento, Cal.—interesting application of liquid chlorine. N. E. Williamson. *Eng & Contr* 44:314 O 20 '15
- Water coagulation, sedimentation and aeration plant at Norristown, Penn. S. C. Corson. *II diag Eng N* 73:853 My 6 '15
- Water-disinfecting outfit for field use. *II Eng & Min J* 99:533 Mr 20 '15
- Water purification in Columbus, Ohio. C. P. Hoover. *Munic Eng* 49:101-2 S '15
- Water-purification results at Cincinnati in 1914. J. W. Ehlms. *Eng N* 73:964 My 20 '15
- Water sedimentation, coagulation and mechanical filtration at Waco, Texas. *II Eng N* 72:1162-3 D 10 '14
- Water-supply and typhoid fever at Cumberland, Md. A. C. Fowler and M. J. Colton. *II Eng N* 73:969-70 My 20 '15
- Water supply treatment at Council Grove, Kansas. L. L. Tribuz. *II diag Am Water Works Assn J* 2:83-102 Mr '15
- Whipping chemicals into a colloidal water increases efficiency. *II plans Eng Rec* 72:292-3 S 4 '15

See also Feed water purification; Filters and filtration; Oil separators; Water—Bacteriology; Water aeration; Water softening; Water supply

Water rates

- Ashland, Wis., water-rate decisions explained. W. E. Miller. *Eng Rec* 71:806-7 Je 26 '15
- Birmingham, Ala., water-rate agreement. *Eng N* 73:552-3 Mr 18 '15
- Charges for London water. *Engineer* 119:298 Mr 26 '15
- Commission revises water rates in Leavenworth, Kan. *Eng N* 74:217 JI 29 '15
- Example of direct competition between publicly and privately owned water works plants in Tarentum, Pa. L. Hudson. *Eng & Contr* 44:162-3 S 1 '15
- Experiences of a city of 6,000 population with water waste, famines, meters and rates. C. J. Renner. *Eng & Contr* 43:54-6 Ja 20 '15
- Making of water meter rate schedules. *Eng & Contr* 43:191-3 Mr 3 '15
- Regulation of water rates, Pocatello, Idaho. *Munic Eng* 47:457-8 D '14
- Water-works charges and depreciation at Fargo. *Eng N* 73:994-5 My 20 '15

Water rights

- Appraisal of water right values. H. P. Gillette. *Eng & Contr* 44:157-8 S 1 '15
- California agreement on water power development of national forests. *Power* 40:867-3 D 15 '14
- Water-power bills before Congress. *Power* 41:72-3 Ja 12 '15
- Water-power legislation: Adamson and Ferris bills. *Power* 41:57-8 Ja 12 '15
- What an engineer should know about water rights. M. Bien. *Eng & Contr* 43:412-14 My 5 '15

See also Water supply

Water softening

- Bartlett-Graver water softener. *II Colliery* 35:842 Ja '15
- Method of softening and purifying feed water used by a Brooklyn company. *diag Elec W* 66:413-14 Ag 21 '15
- Six years of softened and purified water at McKeesport, Pa. E. C. Trax. *Eng & Contr* 44:187-8 Ag 25 '15

Softening plant converts hard, impure river water into boiler feed supply. *II Eng Rec* 72:622-4 N 20 '15

Value of permuted water for processing yarns. A. R. Calvo. *Textile World* 49:343-4+ My '15

Water softener effects economy in central-station plant. *Elec R & W Elec'n* 67:207-8 JI 31 '15

Water softener in feed-water treatment. H. R. Dorman. *II Power* 42:246-8 Ag 17 '15

See also Water purification

Water stills. See Distillation**Water storage**

Decoloration of stored water is due to bleaching by sunlight and oxidation. R. H. Stearns. *Eng Rec* 72:318-19 S 11 '15

Water supply

Biochemical and engineering aspects of sanitary water supply. G. W. Fuller. *J Fr Inst* 180:17-61 JI '15

Cooled drinking water. R. F. Massa. *Am Water Works Assn J* 2:422-33 Je '15; Abstract. *Eng M* 49:916-17 S '15

Ground water supplies. W. S. Johnson. *II diag Boston Soc C E J* 2:169-89 My '15; Same cond. *Eng & Contr* 44:29-31 JI 14 '15

Growing value of ground water supplies. L. J. Le Conte. *Am Water Works Assn J* 1:715-16 D '14

Problems in power-plant design. (Engineers' study course) C. L. Hubbard. *Power* 40:931-2; 41:32-4 D 29 '14-Ja 5 '15

Stripping water-works reservoirs. F. P. Stearns. *Eng N* 74:302-5 Ag 12 '15

Study of a water supply by pumping for concrete road construction. *plan Eng & Contr* 43:467-8 My 26 '15

Unique water-supply of Newark, N. J. *II Eng N* 73:863-5 My 6 '15

See also Aqueducts; Artesian wells; Catskill aqueduct; Cisterns; Dams; Drinking fountains; Electric plants—Water supply; Feed water; Filters and filtration; Fire service; Hot water supply; Hydrants; Irrigation; Plumbing; Pumping stations; Pumps; Railroads—Water supply; Reservoirs; Snow surveys; Standpipes; Surge tanks; Water; Water companies; Water meters; Water pollution; Water purification; Water rights; Water supply engineering; Water tanks; Water towers; Waterworks; Wells; also names of cities, subhead Water supply

Cost

Question box: What it costs per consumer to read meter, make out bill, deliver bill and collect bill? *Am Water Works Assn J* 1:675-6 D '14

See also Water pipes—Cost

Rates

See Water rates

Argentina

Water supply and drainage in Argentina. A. Dale. *II Metal Work* 34:103-6 JI 23 '15

California

Sanitary features of the Los Angeles aqueduct. E. O. Slater. *map J Ind & Eng Chem* 7:622-5 JI '15

Hawaiian Islands

Potable water supplies of the Hawaiian Islands. S. W. Tay. *Munic J* 38:104 Ja 28 '15

Illinois

Improved water from deep wells in northern Illinois. C. B. Williams. *Am Water Works Assn J* 2:410-15 Je '15; Same. *Munic Eng* 43:306-7 My '15

Iowa

Representative Iowa water supplies. J. H. Dunlap. *Eng & Contr* 43:76-7 Ja 27 '15

Kansas

State supervision of public water-supplies in Kansas. F. R. Hesser. *Eng N* 74:546-7 S 16 '15

Water supply—Continued.

Massachusetts

Water-supplies and health in Massachusetts. A. L. Gammage. Eng N 74:1077-9 D 2 '15

Montana

Chemical standards for the hygienic purity of public water supplies in Montana. W. M. Cobleigh. Eng & Contr 42:178 Ag 19 '14

New York

Yonkers water supply and its future development. D. F. Fulton. map Am Water Works Assn J 2:1-8 Mr '15; Discussion. 2:8-12, 3:11-13 Mr, Je '15

Panama

Contamination of a drinking and railroad water supply by sea water and the removal of the salt water from the reservoir. J. R. Downes. Am Water Works Assn J 1:709-14 D '14

Texas

Meeting water-supply shortage at Henrietta, Tex. T. L. Fountain. Eng N 73:1129 Je 10 '15

Water supply of Longview, Texas. P. E. Green. Am Water Works Assn J 2:416-21 Je '15

Washington, D. C.

Relations between the water supply and typhoid fever in Washington, D. C. J. Gaub. Am Water Works Assn J 1:727-33 D '14

Water supply, Rural

Unsatisfactory water supply system in a country house. plan Dom Eng 72:320-1 S 11 '15

Water supply and sewage disposal. Metal Work 84:398 S 24 '15

Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. diags Dom Eng 72:194-7, 224-6, 254-6, 284-6, 313 Ag 14-S 11 '15

Water supply engineering

Addition to Hartford waterworks system augments daily supply by 30,000,000 gallons. II map Eng Rec 72:289-90 S 4 '15

Blast-furnace plant auxiliaries and general arrangement. J. E. Johnson, jr. diag Met & Chem Eng 13:373-7 Je '15

Chicago water works notes. II Munic J 37:918-19 D 24 '14

Chicago's new tunnel and pumping station part of comprehensive waterworks plan. H. S. Baker. map Eng Rec 71:73-4, 103-4 Ja 16-23 '15

Cleveland west side water-supply tunnel. II diags plan Eng N 73:4-8 Ja 7 '15

Conditions encountered and methods employed in laying water pipes in the congested streets of New York city. M. Blatt. Eng & Contr 44:246-7 S 29 '15

Constructing shaft and tunnel at Lake View pumping station, Chicago water works. H. W. Clausen. Eng & Contr 42:500-1 N 25 '14

Construction of Cumberland waterworks. F. H. Eastman. II Eng Rec 71:137-8 Ja 30 '15

Construction of water works tunnels in the Metropolitan water district of Massachusetts. W. E. Foss. II diags map Eng & Contr 42: 84-9, 129-31, 352-5, 451-3 JI 22, Ag 5, O 14, N 11 '14

Construction plant and methods employed on new water works intake tunnel at Milwaukee. II diags plan Eng & Contr 43:352-5, 371-2 Ap 21-23 '15

Costs and special features of the new water supply of Victoria, British Columbia. B. Ehle. II diags Eng Rec 72:406-10 O 2 '15

Curves on Winnipeg aqueduct built with straight sections of forms. diags Eng Rec 72:657-8 N 27 '15

Design and methods and cost of constructing the Los Angeles city trunk line, connecting aqueduct to distribution system. B. A. Heintz. II diags Eng & Contr 43:390-4 My 5 '15

Designing small water works systems. Eng & Contr 42:207-3 Ag 26 '14

Fall River's proposed water supply system. II Atlas Sci Am 113:353-4 O 23 '15

Five 4-foot water mains underpinned after break. diag Eng Rec 72:7-8 JI 3 '15

Hetch Hetchy water supply project. Eng & Contr 43:sup22-3 Mr 31 '15

Installing water service connections at New Orleans. Eng & Contr 42:164-5 Ag 12 '14

Interesting chart of Pittsburgh water system, showing its recent transformation. diag Eng N 73:250-1 F 11 '15

Leakage from Cedar lake reservoir, Seattle water-supply. C. E. Fowler. II map plan Eng N 73:112-16 Ja 21 '15

Lynn waterworks improvement. W. B. Conant. II Munic J 39:261-2 O 23 '15

Method and cost of constructing and repairing submerged water pipe lines at Portland, Ore. D. D. Clarke. diags Eng & Contr 42: 538-42 D 9 '14

New England water-works association 34th annual convention. Eng N 74:566-8 S 16 '15

New England water works association 34th annual convention. Munic J 39:443-6 S 16 '15

New intake tower and tunnel at the St. Louis water works. E. C. Davis. II diags plans Assn Eng Soc J 53:281-300 D '14

Pipe distribution systems; with discussion. N. S. Hill, jr. maps Am Water Works Assn J 2:107-59 Mr '15

Placing the Milwaukee waterworks intake crib. R. E. Stoelting. II diag Eng N 73:1058-9 Je 3 '15

Plan for condensing-water supply for Fall River, Mass. H. S. Knowlton. plan Power 42:643-4 N 9 '15

Progress in water supply. A. Hazen. Eng Rec 71:5-6 Ja 2 '15

Rebuilding the Omaha water-intake cribs. G. T. Prince. II diags Eng N 74:342-4 Ag 19 '15

Relocation and mapping of uncharted portions of water distribution systems. C. E. Davis. Eng & Contr 43:74-5 Ja 27 '15; Same. Munic Eng 48:137-9 F '15; Abstract. Eng N 73: 250 F 11 '15

San Francisco's future water-supply: Hetch Hetchy project. A. J. Cleary. II Eng N 73: 298-301 F 18 '15

Seventy years of civil engineering. II Sci Am 112:527 Je 5 '15

Sooke lake water-supply for Victoria, B. C. C. H. Rust. Eng N 74:396-7 N 18 '15

Ten and three-quarters miles of 36-inch riveted-steel pressure line built on Sooke work. B. Ehle. II plan Eng Rec 72:564-5 N 6 '15

Underflow water-supply at Moline, Kan. W. L. Benham. Eng N 73:325-6 My 13 '15

Unusual water-supply for power plant. F. B. Hays. plan Power 42:684 N 16 '15

Virgin country renders concrete pipe line construction difficult. B. Ehle. II diags plan Eng Rec 72:507-10 O 23 '15

Water-pipe tunnel, Metropolitan water-works. B. Lawrence. II diags Eng N 73:1116-21 Je 10 '15

Water works engineering mistakes. D. H. Maury. Eng & Contr 42:246-7 S 9 '14

Western Australian goldfields: how water supplies are provided. L. E. Shapcott. II Sci Am 111:508-9 D 19 '14

Wilson avenue water tunnel at Chicago. diags plan Eng N 73:764-7 Ap 22 '15

See also Aqueducts; Canals; Dams; Filters and filtration; Hydraulic engineering; Irrigation; Pipe laying; Plumbing; Pumping stations; Pumps; Railroads—Water supply; Siphons; Water conduits; Water flow; Water hammer; Water meters; Water pipes; Water towers; Waterworks; also Catalki aqueduct; Los Angeles aqueduct

Examinations

Civil-service examination for water-works engineer. Eng N 74:1071 D 2 '15

Water supply for factories

Cooled drinking water. R. F. Massa. Am Water Works Assn J 2:422-33 Je '15; Abstract. Eng M 49:316-17 S '15

Providing a shop drinking water system S. E. Bunnell. Metal Work 53:695-6 My 1 '15

Test of a mill drinking water system. F. H. Brown. Iron Age 96:110-11 JI 3 '15

Water supply for factories—Continued

- Two-pressure hydraulic service. A. D. Williams. plan Power 41:871-2 My 18 '15
Two-pressure hydraulic service. W. Hirst. diag Power 42:23 J 6 '15

Water tanks

- Controlling the water-supply to a closed tank. B. C. Luce. plan Eng N 74:271 Ag 5 '15
Municipal water tank bursts under air pressure. W. Chipman. il Eng N 74:860 O 28 '15
Reinforced-concrete tank of 100,000-gallon capacity designed by use of diagrams. A. R. James. diags Eng Rec 72:185-6 J 31 '15
Steam coil in water tank. J. E. Noble. diag Power 41:756 Je 1 '15
Water-tank controlling device. plans Power 41:680 My 18 '15; Same. Eng & Min J 99: 905 My 22 '15; Same. Eng & Contr 44:860 N 3 '15

See also Water towers

Water towers

- Appearance considered in German water towers. diags Eng Rec 72:48-9 J 10 '15
Artistic American water tower. C. S. Pillsbury. il Eng Rec 72:174 Ag 7 '15
Design and construction of the new 500,000-gal. elevated water tank at Appleton, Wis. D. D. Williams. il Eng & Contr 44:120-1, Ag 18 '15
Railway roadside water tanks for locomotive supply; with comparative costs of wood and steel structures. diag Ry Age 59:955-8 N 19 '15; Abstract. Ry R 57:517-18 O 23 '15
Stability of unanchored tanks. C. R. Knowles. Ry Age 59:954 N 19 '15
Wood vs steel water tanks. J. Dupree. Ry R 56:536 Ap 17 '15
Wooden versus steel water tanks. M. D. Miller. Ry R 57:23-5 J 1 3 '15

See also Standpipes; Surge tanks; Water tanks

Water towers, Concrete

- Building concrete silos; with water towers. C. D. Gilbert. il diags Concrete Cem 7:61-2 Ag '15
Concrete surge tank, disconnected at base, operates on differential principle. il diag Eng Rec 71:368-70 Mr 20 '15
Duxbury reinforced-concrete water-works tank. il diag Eng N 73:882-3 My 8 '15
Earthquake-proof concrete tower, San Francisco. Eng N 74:808-9 Ag 12 '15
Methods and costs in constructing a combined concrete silo and water tank. il diag Concrete Cem 6:162-4 Mr '15
Reinforced concrete for railway water tanks. J. T. Bowser. Eng Rec 71:81-2 Ja 16 '15
Reinforced-concrete tower tank at Middleborough, Mass. G. A. Sampson. diags Eng N 74:392-4 Ag 26 '15

Water-tube boilers. See Boilers, Water-tube**Water waste**

- Allowable leakage from cast iron water mains; abstracts. E. C. Bradbury. Eng & Contr 42:499-500 N 25 '14; Eng Rec 70:330-1 S 19 '14; Eng N 72:725 O 8 '14; Munic J 38: 251-2 F 25 '15
Cost of wasting water. Munic J 39:363-4 S 2 '15
Data and discussion on leakage from cast iron water mains. J. W. Ivy. Eng & Contr 43:568-9 Je 30 '15
Data on consumption and cost of water for uses difficult to control if the supply is unmeasured. W. F. Sullivan. Eng & Contr 42:310-11 S 30 '14
Demonstrating the cost of water waste. il Eng N 74:319-20 Ag 12 '15
Detecting underground leaks—methods employed by numerous cities. Munic J 38:542-3 Ap 22 '15
Detecting water waste at St. John's, Newfoundland. Munic J 38:103-4 Ja 28 '15
Economies of water waste in cities. R. O. Wynne-Roberts. Eng & Contr 42:330-2 O 7 '14
Experiences of a city of 6,000 population with water waste, famines, meters and rates. C. J. Renner. Eng & Contr 43:54-6 Ja 20 '15
Increasing precision in pitometer survey work at Washington, D. C.—meter reading. Eng & Contr 43:26 Ja 13 '15

- Leakage from lead joints; abstracts. A. H. Smith. Munic J 39:470-1 S 23 '15; Eng & Contr 44:313-14 O 20 '15
Public education on water waste. Munic J 39: 502-3 S 30 '15
Results of meterage at Columbus, Ohio, with special reference to restriction of waste in lawn sprinkling. J. O'Shaughnessy. Eng & Contr 43:190-1 Mr 3 '15
St. Louis gives object lessons of water waste. Eng Rec 72:330 S 11 '15
Saving in the pump room. W. E. Dixon. diag Power 41:171-2 F 2 '15
Wash water salvage at Champaign and Urbana, Ill. E. Babbitt. Am Water Works Assn J 2:393-6 Je '15
Waste prevention by individual meters versus district meters. R. O. Wynne-Roberts. Am Water Works Assn J 2:397-400 Je '15; Same. Eng & Contr 44:32-3 J 14 '15
Water waste. C. R. Knowles. il Ry Age 59: 756-8 O 22 '15
Water waste surveys in the District of Columbia. P. Lanham. il Eng & Contr 43:275-6 Mr 24 '15
Water works statistics for the year 1914; waste prevention. Munic J 38:551-3 Ap 22 '15

See also Seepage; Water meters

Water wheels

- Analysis of waterwheel-governor effort; abstract. E. D. Searing. Elec W 66:1513-14 Je 12 '15
Bamboo waterwheel used for Philippine irrigation. J. W. Swaren. il Eng Rec 71:814 Je 26 '15
Change of runners permits 100 per cent head increase. W. V. N. Powelson. Eng Rec 71: 202 F 13 '15
Hydraulic turbines; wheels and pumps at the Panama-Pacific exposition. H. J. Kennedy. il Sci Am S 80:134-6 Ag 21 '15
Impulse wheels for 5000-ft. head, Lac Fully plant; abstract. F. Prasil. diags Eng N 73: 138-9 Ja 21 '15
Old waterwheel at Troy ran continuously 45 years. E. A. Vivartas. il Eng Rec 71:752 Je 12 '15
Practice in high-head hydraulic plants; abstract. J. P. Jollyman. Elec W 66:1513 Je 12 '15
Repair to waterwheel. J. W. Swaren. il Power 41:338 Je 22 '15
Water motors operate gate-valves in nozzle lines. J. W. Swaren. il Eng Rec 72:134 J 31 '15
Waterwheel designed for mule-back transportation. il Eng Rec 71:198 F 13 '15

See also Turbines

Water works. See Waterworks**Waterfowl. See Water birds****Watering-stations**

- Street watering-station. F. E. Merrill. diag Eng M 49:274-5 My '15

Waterproofing

- History of Attleboro, Mass., standpipe of reinforced concrete. il Eng N 73:816-18 Ap 29 '15
Making concrete tight; Tacoma and Seattle water-works. C. E. Fowler. il Eng N 74: 1076-7 D 2 '15
Method and cost of waterproofing settling basin bottoms at St. Louis. G. G. Black. Eng & Contr 44:103 Ag 11 '15
Methods and costs of waterproofing concrete surfaces to decrease disintegration by frost. J. L. Lytel. Eng & Contr 43:348-7 Ap 14 '15
Methods used to waterproof bridge floors. Eng & Contr 43:399-400 My 5 '15
Oil-mixed Portland cement concrete. L. W. Page. U S Agric Bul 280:1-26 '15; Abstract. Eng & Contr 44:227-8 S 22 '15; Excerpt. Eng Rec 72:834-5 S 11 '15; Excerpt (Oil-mixed concrete for damp proofing) Munic Eng 48: 375-6 Je '15; Same. Bldg Age 37:24 J 1 '15; Same. Am Gas Light J 105:29 J 12 '15; Same. Concrete Cem 7:30 J 1 '15
Relining a small bricklined water works reservoir with asphalt and concrete at Irwin, Pa. J. M. Rice. il diags Eng & Contr 43:273-4 Mr 24 '15

Waterproofing—Continued

- Repairing and waterproofing the Nashville water-works reservoir. W. W. Southgate. *Il* diags Eng N 73:549-52 My 6 '15
- Test results with concrete waterproofing materials. Eng N 73:125 Ja 21 '15
- Tunnel waterproofing with cement-and-clay mortar. Eng N 73:731-2 Ap 15 '15
- Waterproofing concrete. L. G. Hall. *Sci Am* 112:629 Je 26 '15
- Waterproofing concrete. S. Stone, Jr. *Sci Am* 113:291 O 2 '15
- Waterproofing concrete construction. Ry R 57:91 J1 17 '15
- Waterproofing concrete surfaces. Assn Eng Soc J 54:275-6 Je '15
- Waterproofing concrete surfaces. J. L. Lytel. *Munic Eng* 49:106 S '15
- Waterproofing existing concrete structures. Eng N 73:707 Ap 15 '15
- Waterproofing for concrete. *Concrete Cem* 7: 57 Ag '15
- Waterproofing solid steel-floor bridges. S. T. Wagner; abstracts. diags Ry R 56:273-7 F 27 '15; Eng & Contr 43:79-81 Ja 27 '15; Revised specifications. Eng & Contr 44:209-11 S 15 '15; Discussion. A. W. Carpenter. Ry R 56: 557-8 Ap 24 '15
- Weathering of concrete prevented by waterproofing. Eng Rec 71:486 Ap 17 '15
- See also Corrosion and anti-corrosives

Waterproofing of textiles

- Waterproofing gauze. *Textile World* 49:532-3 Ag '15
- Waterproofing yarns and fabrics. *Textile World* 49:368-70 Je '15

Watersheds

- Methods employed in the reforestation of the Croton watersheds. T. C. Culyer. Eng & Contr 44:202 S 15 '15

Watertown arsenal

- Abolition of scientific management in government shops. L. W. Moffett. *Il* Iron Tr R 56: 963-64 My 13 '15
- Criminal speeding-up system—and some facts. W. Crozier. *Am Ind* 15:30-1 Ja '15
- Employees' grievance committee. *Iron Age* 95: 653 Mr 18 '15
- Labor union, scientific management and the government. *Ind Eng* 15:6 Ja '15

Waterways

- Development of inland water transportation. J. H. Bernhard. Eng Rec 72:332-4 S 11 '15
- Illinois waterway—proposed eight foot channel from Lockport to Utica. map Eng & Contr 43:201 Mr 3 '15
- Inland water transportation. T. G. Dabney; F. Lavis. Eng Rec 72:519-20 O 23 '15
- Rivers and railroads in the United States. W. W. Harts. Ry Age 58:230-1 F 5 '15; Discussion. F. Lavis. Ry R 56:860-2 My 15 '15; Same cond. Ry Age 58:975-6 My 7 '15
- See also Canals; Rivers

- Waterwheels. See Water wheels

Waterworks

- African water system. *Metal Work* 81:646 N 19 '15
- American waterworks association 35th annual convention. *Munic J* 38:705-8 My 20 '15
- Bradford waterworks. *Il* plan maps Engineer. 119:251-4, 278-80 Mr 12-19 '15
- Chicago's new tunnel and pumping station part of comprehensive waterworks plan. H. S. Baker. map Eng Rec 71:73-4, 103-4 Ja 16-23 '15
- Choice of alloys for water work design. H. Carpenter. *Am Water Works Assn J* 2:351-8 Je '15; Same abr. Eng & Contr 43:333-4 Ap 14 '15
- Cincinnati builds high-pressure fire service system. J. A. Hiller. *Il* diags Eng Rec 71:590, My 8 '15
- Cincinnati water works. J. W. Hill. diags *Am. Water Works Assn J* 2:42-60 Mr '15
- Concrete rings, superimposed, sunk to form San Antonio pump pit. W. W. Hay. *Il* diags Eng Rec 71:741-2 Je 12 '15
- Cost and other data on the reconstruction of the Hamilton, Ontario, water works. A. F. Macallum. Eng & Contr 44:312-13 O 20 '15; Same. *Il* *Munic Eng* 49:164-7 N '15

- Council Bluffs waterworks regeneration reverses slump in population curve. *Il* diags Eng Rec 72:286-7 S 4 '15
- Design features and cost of gravity water works at Mellen, Wis. W. G. Kirchoffer. *Il* diags Eng & Contr 44:169-60 S 1 '15
- Design features of the new water works at South Orange, N. J. *Il* Eng & Contr 43:519-20 Je 9 '15
- Design features of the proposed water supply and purification works, Corpus Christi, Texas. diags Eng & Contr 42:599-600 D 30 '14
- Developments in the Marshall, Texas, water works in recent years. B. F. Meyers. *Il* Eng & Contr 43:549-50 Je 23 '15
- East African water system. G. A. Chamberlain. *Metal Work* 84:309-1 S 3 '15
- Electric pumping at Fairmount, Ind.; comparison of service by reciprocating steam pumps and by electrically driven centrifugal pumps. J. A. Randolph. *Munic J* 39:356-8 S 2 '15
- Electrically driven water-works plant. E. M. Ivens. *Il* plan Power 42:198-200 Ag 10 '15
- Electricity for municipal pumping. *Il* Elec R & W Elec'n 67:653-6 O 9 '15
- Electricity in waterworks plants. L. E. Darling. Elec R & W Elec'n 66:869-71 My 8 '15
- Erie waterworks improvements. *Il* *Munic J* 39:358-9 S 2 '15
- Experiences in rebuilding and reinforcing a water works system. O. T. Smith. *Am Water Works Assn J* 2:404-6 Je '15
- How low fixed charges favor centrifugal pumps. G. H. Gibson. *Il* plan Eng N 74:886-8 N 4 '15
- Improving Liberty, N. Y., water supply. H. W. Taylor. *Il* *Munic J* 38:390-1 Mr 25 '15
- Municipal pumping stations of Detroit. T. Wilson. *Il* Power 41:150-3 F 2 '15
- New waterworks at Madras, plans map Engineer 119:58-9, 78-81 Ja 15-22 '15
- Rapid gate-closing device mounted on motor truck. *Il* Eng Rec 70:573-4 N 21 '14; Eng & Contr 42:454 N 11 '14
- St. Louis water works improvements. *Munic J* 39:360-1 S 2 '15
- San Francisco's auxiliary water-supply for fire protection. A. J. Cleary. *Il* plan diags Eng N 73:290-7 F 18 '15
- Second rebuilding of the water-works of Montrose, Col. P. W. Pinkerton. Eng N 73: 883-4 My 6 '15
- Small waterworks revamped under service; rapid sand filters and new pumping station constructed at Painesville, Ohio. G. W. Knight and R. F. MacDowell. plan Eng Rec 72:287-8 S 4 '15
- Standard gate valves of the New York city waterworks. *Il* diags Eng N 73:1016-18 My 27 '15
- Steam-turbine-driven centrifugal pumps of the Toronto water works. *Il* Eng & Contr 43:548-9 Je 23 '15
- Street stop-cock of the Boston water-works department. G. H. Finneran. diags Eng N 73: 77 Ja 14 '15
- Turbine-driven water-works plant, Charlotte-town, P. E. I. C. O. Thomas. *Il* Power 42: 504-5 O 12 '15
- Water supply at Wilmington, Delaware. E. M. Hoopes, Jr. and J. M. Caird. *Il* *Am Water Works Assn J* 1:111-34 Mr '14; Same cond. Eng & Contr 42:210-12 Ag 26 '14
- Water works improvements at Jacksonville, Fla. *Il* Eng & Contr 44:178 S 8 '15
- Water-works improvements at San Diego, Cal. diags Eng N 73:843 F 18 '15
- Water works improvements in 1915; tabulation. *Munic Eng* 48:266-7 Ap '15
- Water works of Valparaiso, Ind. E. L. Loomis. *Il* *Munic Eng* 49:9-12 J1 '15
- Water works plant of River Forest, Illinois. K. M. Mitchell. *Munic Eng* 48:101-4 F '15
- Works for the improved water supply of Columbus, Ga. plans Eng & Contr 42:496-8 N 25 '14
- See also Filters and filtration; Hydrants; Pumping stations; Pumps; Water pipes; Water purification; Water supply; Water supply engineering

Waterworks—Continued.**Accounting**

- Elements of water works accounting. diags Eng & Contr 42:600-2 D 30 '14
 Field and office methods employed by Louisville water co. in checking construction gang payrolls. G. D. Crain, jr. Eng & Contr 43:102-3 F 3 '15
 Suggestions on accounting for municipally owned water works. C. C. Clothier. Eng & Contr 43:551 Je 23 '15
 Valuation of water works properties. H. P. Gillette. Eng & Contr 43:394-5, 486-8; 44:14-18 My 5, Je 2, Jl 7 '15

Cost

- Cost of installing small water works systems in Massachusetts. H. R. Crohurst. II Eng & Contr 43:461-5 My 26 '15
 Cost of pumping stations, pumping machinery and distributing reservoirs in small water works of Massachusetts. W. S. Johnson. Eng & Contr 42:312-13 S 30 '14
 Waterworks practices and costs. Munic J 39:148 J 29 '15

Finance

- Method of assessing cost of water main extensions by the municipally owned water works of Duluth, Minn. D. A. Reed. Eng & Contr 43:447-8 My 19 '15

Inspection

- House to house inspections. A. P. Folwell. Am Water Works Assn J 1:685-7 D '14
 Water waste surveys in the District of Columbia. P. Lanham. II Eng & Contr 43:275-6 Mr 24 '15

Laboratories

- Laboratory control of small water supplies. E. Bartow. plans Eng & Contr 43:56-7 Ja 20 '15

Laws and regulations

- Features of the Ontario statutes and their administration affecting water supplies and sewerage systems. F. A. Dallyn. Am Water Works Assn J 2:344-50 Je '15
 New water works ordinance adopted by referendum at Fargo, N. D. Eng & Contr 43:396 My 5 '15
 Power of municipalities owning waterworks to compel consumers to install and pay for water meters—court decisions. J. Simpson. Munic J 87:320-1 D 24 '14
 Prescribed water works operating methods in West Virginia. J. K. Anderson. Eng & Contr 44:32-3 Ag 4 '15
 Water-works charges and depreciation at Fargo. Eng N 73:994-5 My 20 '15

Maintenance and repair

- Detecting underground leaks—methods employed by numerous cities. Munic J 38:542-3 Ap 22 '15
 Maintenance of the water supply distribution system of New York city. W. W. Brush. II maps Am Water Works Assn J 2:206-37 Mr '15; Same cond. Eng & Contr 44:44-7 Jl 21 '15; Discussion. F. B. Nelson. Am Water Works Assn J 2:306-10 Je '15
 Water and sewer maintenance in New Orleans. Munic J 39:354-6 S 2 '15

Management

- Boston municipal water plant derives income from water power. W. B. Conant. II Munic Eng 49:117 S '15
 Bringing order out of chaos in the McAlester, Okla., water department. R. S. Naylor. Eng & Contr 44:18-19 Jl 7 '15
 Comparative cost of collecting water bills by mail and by collectors at Seattle, Wash. Eng & Contr 44:33 Jl 14 '15
 Data on consumption and cost of water for uses difficult to control if the supply is unmetered. W. Sullivan. Eng & Contr 42:310-11 S 30 '14
 Elements of good record keeping by water departments. J. W. Lacy. Eng & Contr 44:178 S 8 '15

- Faulty operation of the average public utility with special reference to water works. N. T. Veatch, jr. Eng & Contr 43:171-3 F 24 '15
 Improvement and standardization of procedure in water works management. G. G. Earl. Eng & Contr 43:569-70 Je 30 '15
 Meter maintenance systematized by waterworks department in Milwaukee. II Eng Rec 71:587-8 My 8 '15
 Motor vehicles in water-works service at Los Angeles. B. A. Heintz. Eng N 73:861-3 My 6 '15
 Organization of and procedure in the water department of Pasadena, Calif. Eng & Contr 43:372-4 Ap 23 '15
 Practical value of publicity to the water works man. S. C. Hadden. Am Water Works Assn J 2:359-66; Discussion. D. R. Gwinn. 2:366-70 Je '15
 Provisions governing water main extensions in 135 American cities. Am Water Works Assn J 1:250-9 Je '14; Same. Eng & Contr 42:381-3 O 21 '14
 Springfield water-works. II Eng N 74:406-9, 443-5 Ag 26-S 2 '15
 Standard form of correspondence used in the department of water, San Diego, Calif. Eng & Contr 42:520-1 D 2 '14
 Use of automobiles in water works service at Worcester, Mass. G. W. Batchelder. Eng & Contr 42:333-4 O 7 '14
 Water department methods which limit per capita consumption to 39 gals. daily at Milton, Mass. D. A. Heffernan. Eng & Contr 42:311-12 S 30 '14
 See also Water meters; Water waste

Rates

See Water rates

Regulation

- Illinois utilities commission and the water works companies. C. G. Bennett. Am Water Works Assn J 2:382-9 Je '15
 Illinois utilities commission has waterworks rules. Eng N 74:885 N 4 '15
 Making water bills a lien on real property. Eng & Contr 42:426-6 N 4 '14
 Michigan supreme court decision in case of Kalamazoo vs. Standard paper co. to recover value of water taken from fire lines for industrial use. Eng & Contr 42:487-9 N 18 '14
 Municipal ownership and operation of water-works: case for state control. M. N. Baker. Eng N 72:1115 D 8 '14
 Prescribed water works operation methods in Missouri. Eng & Contr 44:293-4 O 13 '15
 Regulations governing preparation of reports on water supply systems and extensions in Saskatchewan. Eng & Contr 42:131-2 Ag 5 '14
 Rules for water utility operation in Oregon. Eng & Contr 42:177-8 Ag 19 '14
 State regulation of municipally owned water works in Wisconsin. C. M. Larson. Eng & Contr 43:426-7 My 12 '15
 State regulation of the operation of a small water works in Pennsylvania. Eng & Contr 43:103-4 F 8 '15
 Water filtration hold-up at Ottawa, Ont. Eng N 72:1187 D 10 '14
 Water-works rules issued by Montana commission. Eng N 74:1019 N 25 '15

Statistics

- Water works analysis contains data from 5158 towns. Eng Rec 72:13 Jl 8 '15
 Water works statistics for the year 1914. Munic J 38:544-57, 730-1 Ap 22, My 27 '15

Valuation

- Acquisition of private water plants by municipalities. B. M. Wagner. bibliog. Am Water Works Assn J 2:25-41 Mr '15; Discussion. 2:582-4 S '15
 Economic aspects of water works valuation. R. E. Hellman. Am Water Works Assn J 2:538-43 S '15
 Observations on water works valuation; with discussion. J. W. Ledoux. Eng & Contr 42:556-8 D 16 '14
 Suggestion for water-works valuation. Eng N 72:1271-2 D 24 '14

- Waterworks—Valuation—Continued.**
Valuation of water works properties. H. P. Gillette. Eng & Contr 43:394-6, 486-8; 44:14-18, 80-1, 157-8, 258-61, 356, 424-7 My 5, Je 2, Ji 7, Ag 4, S 1, O 6, N 3, D 1 '15
- Water works association, American.** See American water works association
- Waterworks associations**
Consolidation of country's waterworks associations urged. G. G. Earl. Eng Rec 71:643 My 22 '15
- Waterworks superintendents**
Choosing a first-class water works superintendent in Massachusetts. Eng & Contr 44:282-3 O 13 '15
- Questions asked in examination of applicants for position of water works superintendent at Kalamazoo, Mich. Eng & Contr 44:158-9 S 1 '15
- Watt-hour meters**
Effect of temperature on the accuracy of watt-hour meters. B. E. Miller. Elec W 66:686-7 S 18 '15
- Following up watt-hour meter records at El Paso. Il Elec Ry J 46:12-13 Ji 3 '15
- Importance of watt-hour-meter maintenance. Elec W 65:1690 Je 26 '15
- Induction watt-hour meter. V. L. Hollister. diags Am Inst E E Pro 34:1217-35 Je '15
- New-type mercury watt-hour meter. A. A. Radtke. Elec W 65:395-6 F 13 '15
- Notes on induction meter design. W. H. Pratt. Il Gen Elec R 18:277-81 Ap '15
- Small, direct-current, watt-hour meter. Il Elec R & W Elec'n 66:219 Ja 30 '15
- Testing polyphase watt-hour meter. F. R. Innes. diag Elec W 65:927 Ap 10 '15
- Watt-hour meter accuracy. D. D. Ewing. Power 41:244-5 F 16 '15
- Watt-hour meter method of testing instrument transformers. P. G. Agnew. diags U S Bur Stand Bul 11:347-57 My 10 '15
- Wattmeters**
Machine-tool performance diagnosis: lessons of the power-time characteristic and value of automatic records on analyzing productive operations. Elec W 65:417-18 F 18 '15
- Wave lengths.** See Spectrum analysis
- Wave motion**
Method for calculating that part of the recoil momentum of a gun which is due to the action of the gases after the projectile leaves the muzzle. W: S. Franklin. J Fr Inst 179:559-77 My '15
- Waves**
Design of shore-protection works. R. Bennett. diags Eng N 74:98-101 Ji 15 '15
- Fighting the sea with compressed air. R. G. Skerrett. Il Sci Am 112:97 Ja 30 '15
- Ripple marks; a study of water action on the seashore. C. Epry. Il map Sci Am S 80:188-91 S 18 '15
- See also Electric waves; Light; Shore protection; Sound; Vibrations
- Wax**
Myrtle wax of commerce. Il Sci Am S 80:301 N 6 '15
- Weather**
Weather influences on mankind. Sci Am 112:624 Je 26 '15
- See also Atmospheric pressure; Rain; Storms
- Weaving**
Designs for a basket weave. Il Textile World 49:537 Ag '15
- Hand book of weaves. G. H. Oelsner. Il Textile World 46:408-11, 503-6, 586-9; 47:87-9, 280-2, 317-19, 408-12, 504-7, 594-9; 48:122-7, 208-12, 316-21, 400-3, 496-501, 589-93; 49:87-91, 163-7, 337-42 Ja '14-Je '15
- Making of Scotch tweeds. T: Welsh. Textile World 48:501-3 F '15
- Weaving tubular goods. Il Textile World 49:657-8 S '15
- Woven fabric. Il Textile World 50:183 N '15
- See also Cotton weaving; Lace; Looms; Silk; Textile industry and fabrics; Woolen and worsted manufacture
- Webster, Arthur Gordon, 1862-**
Sketch. por Eng M 50:211 N '15
- Weed cutters**
Gasoline-operated railway weed mower. Il Sci Am 113:384 O 30 '15
- Northern Texas traction weed cutter. R. E. Griffiths. Il Elec Ry J 45:1121 Je 12 '15
- Weeds**
Butternut tree as a weed eradicator. Sci Am 112:130 F 6 '15
- Weeks law.** See Forestry laws and legislation
- Weighing**
Loss of weight of musk in a current of dry air. C: B. Bazzoni. diag J Fr Inst 180:463-9 O '15
- New assay balance. Il Met & Chem Eng 13:512-13 Ag '15
- Ore weighing at the Bunker Hill mill, Kellogg, Idaho. Eng & Min J 100:520 S 25 '15
- Scheme for weighing coal during stoker trials. diag Elec W 66:695 S 25 '15
- Weighing of less than carload freight. E. A. O'Donnell. Ry Age 57:1197-8 D 25 '14
- Weights and measures**
Accuracy of grain weights. F. C. Maegly. Ry Age 58:883-9 Ap 23 '15
- Measurements for the household. Il U S Bur Stand Circ 55:1-149 '15; Abstract (Efficiency in the household). H. T. Wade. Sci Am 113:448-9 N 20 '15
- Measurements of length and area, including thermal expansion. U S Bur Stand Circ 2:1-21 '15
- Measuring of textile fabrics. E. H. Marble. Textile World 49:85-7 Ap '15
- Recording weights—calling every weight by its right name. F. C. Maegly. Ry Age 58:270 F 12 '15
- Rules for weight of cast-iron pipes. Power 41:425 Mr 30 '15
- Search for standard weights and measures of length. Sci Am 113:175 F 20 '15
- South American trade, weights and measures. Textile World 49:56-8 Ap '15
- Weight of balls or spheres. W. L. Tryon. Foundry 43:356a S '15
- See also Electric measurement; Gages; Measuring instruments; Mensuration; Metric system
- Laws and regulations**
Legal weights per bushel for various commodities. U S Bur Stand Circ 55:144-6 '15
- Measurements for the household. U S Bur Stand Circ 55:28-30 '15
- Weirs**
Flow over V-notch weirs. H. A. Cozzens, jr. Power 42:714 N 23 '15
- Flow over weirs with imperfect contractions. G: J. Davis, jr. diags plan Wis U Bul Eng S 8:77-145 no 2 '14
- Inverted weir. E. W. Rettger. diags Eng N 73:72-3 Ja 14 '15
- Irrigation weir, measuring rod and discharge card. K. A. Hieron. Il diag Eng N 74:257 Ag 5 '15
- Large Sutro weir under test. B: D. Moses. Eng N 74:277 Ag 5 '15
- Recorder for measuring flow over weirs. Il Ry Age (Mech ed) 39:433 Ag '15; Elec W 66:605-6 S 11 '15
- Tests of a proportional weir. Il Eng N 74:1018-19 N 25 '15
- Tests of the effect of temperature on weir coefficients. F. G. Switzer. Eng N 73:636 Ap 1 '15
- V-notch weir. J: E. Rothwell. Il Eng & Min J 100:142-3 Ji 24 '15
- See also Water measurement
- Welding**
Acetylene oil-gas welding outfit. Eng Rec 70:sup279 D 5 '14
- Acetylene welding of gas pipe. G: H. Manlove. Il Iron Tr R 56:272-3 F 4 '15; Abstract. Ind Eng 15:57-8 F '15
- Autogenous pipe welding. Il Iron Age 95:296-7 F 4 '15
- Autogenous soldering or welding of aluminum. Il Mach 21:369-71 Ja '15
- Autogenous welding produces strains in metal. S. W. Miller. Eng N 74:805 O 21 '15
- Avoiding hard cast iron in oxy-acetylene welding. M. K. Dunham. Mach 21:1004 Ag '15

Welding—Continued

- Blacksmith's use of borax and cyanide. Eng & Min J 99:1076 Je 19 '15
- Danger of welding processes as applied to tires and wheels. M. D. Hayes. II Elec Ry J 45:942-4 My 15 '15
- Data on oxy-acetylene welding and cutting equipment. Eng & Contr 43:543-4 Je 15 '15
- Economies of welded pipe connections. II Iron Age 95:1289 Je 10 '15
- Fibre helmet for welders. II Foundry 43:380 S '15
- Flashback in the welding torch. M. K. Dunham. diag Mach 22:50-1 S '15
- Flashback in the welding torch. S. W. Miller. Mach 22:233-4 N '15
- Flue welding. E. J. Haskins. Ry Age (Mech ed) 89:471 S '15
- Fluxes for oxy-acetylene welding. S. W. Miller. II Mach 21:786-9 Je '15
- Fluxes of oxy-acetylene welding. II P. F. Willis; S. W. Miller. Mach 21:1007-8 Ag '15
- Gas-weld rail bonding. J. R. Brown. II Elec Ry J 46:1087-9 N 27 '15
- Gas welding for pipe lines. J. F. Springer. II Munic J 38:254-6 F 25 '15
- Goggles for gas welding and cutting. F. W. King. II Iron Age 95:295 F 4 '15
- High speed steel tipped tools. J. W. Pike. II Ry Age (Mech ed) 89:590 N '15
- High temperature flames in metal working. H. R. Swartley, Jr. Iron Age 96:1122 N 11 '15
- How time and money were saved by welding; oxy-acetylene process saved 13 days. II Foundry 43:235 Je '15
- Imperial oxy-acetylene equipment. II Foundry 43:168 Ap '15; Elec Ry J 45:517 Mr 13 '15; Ry Age (Mech ed) 89:197 Ap '15
- Largest oxy-acetylene cast iron welding job. II Iron Tr R 56:1186 Je 10 '15
- Metal added to a shaft. II Iron Age 96:623 S 16 '15
- Methods of jointing aluminum. II Mach 21:470-3 F '15
- New competitor of acetylene. J. F. Springer. Mach 21:303 J '15
- Oxy-acetylene process for boiler work; report of committee of Master boiler makers' association. Ry Age (Mech ed) 89:309-12 Je '15; Same cond. Ry Age 58:1165-6 Je 4 '15
- Oxy-acetylene process of welding. H. Cave. II diags Am Soc M E J 36:208-14 Je '14; Same cond. Eng M 47:750-2 Ag '14; Same cond. Eng & Contr 42:199-200 Ag 26 '14
- Oxy-acetylene welding. A. H. Waychoff. diags Sci Am S 79:132 F 27 '15
- Oxy-acetylene welding and cutting equipment. S. W. Miller. II diags Mach 22:85-99 O '15
- Oxyacetylene welding at Great Falls, Mont. diags Eng & Min J 99:534 Mr 20 '15
- Oxy-acetylene welding eliminates joints in gas mains; with cost figures. II Eng Rec 71:182 F 6 '15
- Oxyacetylene welding in mining. II diag Eng & Min J 99:398-7 F 27 '15
- Oxyacetylene welding in pipe work. W. L. Roueche. II Power 41:808-11 Je 15 '15
- Oxy-acetylene welding; International railway general foremen's association discussion. Ry Age (Mech ed) 89:425-6 Ag '15; Same cond. Ry Age 59:157 JI 23 '15
- Pipe welding at Panama Pacific exposition. II Metal Work 34:237-8 Ag 20 '15
- Portable welding outfit for metallurgical works. II Met & Chem Eng 13:194 Mr '15
- Possible substitute for acetylene in welding and cutting; by-product of natural-gas gasoline. J. F. Springer. Ry Age (Mech ed) 89:529-30 O '15
- Practice of the oxy-acetylene welding process. S. W. Miller. II Mach 22:106-17, 215-19 O-N '15
- Preparation of the work for oxy-acetylene welding. S. W. Miller. II Mach 22:101-5 O '15
- Present status of the art, with references to recent articles. Sibley J 29:197-8 Mr '15
- Recent developments in aluminum. E. V. Pan-nell. II Metal Ind n s 13:453-5 N '15
- Safety in oxy-acetylene welding. Eng M 49:596 JI '15
- Savings effected by using the Oxweld process in repair and reclamation work of varied character on ore vessels. Int Marine Eng 20:470 O '15
- Strength of welds made by the oxy-acetylene process; abstracts. A. Campion and W. C. Gray. Ind Eng 14:415-16 O '14; Am Soc M E J 37:855 Je '15
- Successful acetylene aluminum welding. Metal Work 34:173-4 Ag 6 '15
- Thermit welding. W. R. Hulbert. Am Gas Inst Pro 9:pt 2, 1182-4 '14
- Thermit welding of camshafts. A. H. Jones. Met & Chem Eng 13:929 D 1 '15
- Unusual oxy-acetylene weld. II Elec Ry J 45:898 My 8 '15
- Welding broken machine parts. II Power 42:687-8 N 16 '15
- Welding copper and copper alloys by acetylene methods. J. F. Springer. Ry Age (Mech ed) 89:367-9 JI '15
- Welding defective cores in paper mill by the Prest-O-Lite process. II Met & Chem Eng 13:770 O 15 '15
- Welding of high pressure mains. J. D. Shattuck. II diags Am Gas Inst Pro 9:pt 2, 945-1011 '14; Same abr. Am Gas Light J 102:54-5, 58-60, 66-9 Ja 25-F 1 '15; Discussion. Am Gas Inst Pro 9:pt 2, 1011-52 '14
- Welding the joints of steel gas mains. II Eng N 73:233-4 F 4 '15
- Welding up scrap nickel anodes. II Elec R & W Elec'n 68:1210-11 Je 26 '15; Same. Eng & Min J 100:19 JI 3 '15; Same. Foundry 43:283-4 JI '15; Same. Met & Chem Eng 13:453-4 JI '15; Same cond. Iron Age 95:1392 Je 24 '15; Same abr. Metal Ind n s 13:297 JI '15
- Welding water and gas mains. II Sci Am 112:272-+ Mr 20 '15
- Why acetylene is the combustible gas used for autogenous welding. M. K. Dunham. Mach 21:1017-18 Ag '15
- See also Electric welding; Solder and soldering

Cost

Cost of oxy-acetylene welding. II Engineer 120:388 O 22 '15

Welding, Electric. See Electric welding

Welfare work in industry

- Better living conditions for coke workers; improved relations between the H. C. Frick coke company and its employees. II Iron Age 95:48-9 Ja 7 '15
- Eliminating the dinner bucket. E. W. Pargny. II Iron Tr R 55:1089-91 D 10 '14
- Humanitarian millwork in Greensboro, N. C. G. Dawe. II Am Ind 15:16-17 My '15
- Industrial betterment. F. El. Cardullo. II Mach 22:171-201 N '15
- Relief, compensation and pension system for Westinghouse employees. Elec R & W Elec'n 65:1225 D 26 '14; Same. Elec W 64:1283-4 D 26 '14; Same. Iron Age 94:1497 D 31 '14; Same. Ry R 55:783 D 26 '14; Same. Iron Tr R 56:53 Ja 7 '15
- Safety and welfare work in an electrical plant. C. L. Lucas. II Mach 22:210-14 N '15
- Safety-first, first-aid and welfare work of the Colorado fuel and iron company. II Met & Chem Eng 13:234-8 Ap '15
- Social service as a factor in good management. L. H. Burnett. Ind Eng 14:391-2 O '14
- Teaching English to foreigners in industry. P. Roberts. Am Ind 16:24-6 O '15
- Welfare and training of employees. O. L. Palmer. Am Gas Light J 103:332-3 N 22 '15
- Welfare measures for employees. M. A. Welsh. Elec Ry J 45:841 My 1 '15
- Welfare of workmen in European enterprises. C. Van Langendonck. II Sci Am S 78:360-1 D 5 '14
- Welfare plans of Westinghouse company. Elec W 64:1233-4 D 26 '14
- Welfare work at Glen White. G. D. Evans. II Colliery 35:473-5 Ap '15
- Welfare work at Pitcairn, Pa., freight transfer. Ry Age 59:609-10 O 1 '15
- Welfare work in a steel foundry; the Reading steel casting company. II Iron Age 96:520-1 S 2 '15
- Welfare work in New Mexico. R. McCune. Colliery 35:387 F '15

Welfare work in industry—Continued

Welfare work of Tennessee company. L. Noland. Iron Tr R 56:1124; 57:356-8 Je 3, Ag 19 '15

Welfare work of the Frick coke co. II plan Colliery 36:117-24 O '15

See also Factory restaurants; Hospitals, Factory; Industrial betterment; Profit sharing; Safety devices and measures

Well cars

Well car of 200,000 lb. capacity. II diags Ry Age (Mech ed) 89:397-8 Ag '15

Well water. See Wells**Welland ship canal**

Circumventing Niagara falls. B. Farrows. II map Sci Am S 78:387-8 D 19 '14

Construction of the Welland ship canal. W. A. Craick. II plan Int Marine Eng 20:154-6 Ap '15

Large reinforced-concrete cribs used for Welland ship canal entrance. R. P. Johnson. II diags Eng Rec 71:458-60 Ap 10 '15

Reinforced-concrete floating caissons for the Welland ship canal. II diags Eng N 73:1122-4 Je 10 '15

Wells

Comparison of the water of Sulphur Springs with deep well and mine waters. C. E. Siebenthal. Econ Geol 9:762-3 D '14

Data on cost, depth and strata penetrated for water supply wells in Iowa. Eng & Contr 43:76 Ja 27 '15

Difficulties overcome in sinking a deep well. P. E. Green. diag Eng N 74:450-2 S 2 '15

Drilling 30-in. wells for irrigation. II Eng N 73:924-5 My 13 '15

Effective water works publicity measure at Terre Haute. Eng & Contr 44:161-2 S 1 '15

Electric well-sounding instrument. L. W. Stocker. diags Eng N 73:444-6 Mr 4 '15

Engineering features of the Panama-Pacific international exposition. G. L. Bayley. II Am Soc M E J 87:585-91 O '15; Abstract. Eng N 74:845-6 O 28 '15

Experiences at Delaware, Ohio, in deriving water supply from wells in gravel. C. W. Wiles. Eng & Contr 43:449-50 My 19 '15; Discussion. 43:523 Je 9 '15

Ground water supplies. W. S. Johnson. II diags Boston Soc C E J 2:169-89 My '15; Same cond. Eng & Contr 44:29-31 Jl 14 '15; Discussion. Boston Soc C E J 2:283-90 S '15

Improved water from deep wells in northern Illinois. C. B. Williams. Am Water Works Assn J 2:410-15 Je '15; Same. Munic Eng 48:306-7 My '15

Measuring well-water levels under difficulties. H. W. Keith. diag Eng N 74:1037 N 25 '15

New well water supply of Galveston, Texas. H. G. Wheaton. II Eng & Contr 44:385-6 N 17 '15

Putting down into quicksand a dug well 10 ft. in diameter and 30 ft. deep. J. W. Ledoux. Eng & Contr 42:290 S 23 '14

Putting down large dug well in water bearing sand at Atlantic City, N. J. K. Allen. II Eng & Contr 42:355-6 O 14 '14

Recedence and pressure readings from submerged pumps. G. B. Covington. diag Power 41:473 Ap 6 '15

Selection of deep well pumping machinery. D. A. Graham. Eng & Contr 43:104-6 F 3 '15; Same. Engineer 120:164-5 Ag 13 '15; Abstract. Eng N 73:184 Ja 28 '15; Abstract. Eng Rec 71:204-5 F 13 '15

Success or failure of wells. R. E. Horton. Eng & Contr 44:138-9 Ag 25 '15

Surface pollution of a deep well water. J. W. Hill. Eng & Contr 44:386 N 17 '15

Syphoning water from series of drilled wells to a common pump well at Kokomo, Ind. O. O. Jones. plan Eng & Contr 43:191 Mr 3 '15

Types and properties of deep well pumps. G. W. Bissell. Eng & Contr 44:33-4 Jl 14 '15

Water supply, plumbing and sewage disposal for country homes. R. W. Trullinger. diags Dom Eng 72:194-7, 224-6 Ag 14-21 '15

See also Artesian wells; Drilling and boring (earth and rocks); Petroleum

Cleaning

Using 'compressed' air to clean sand out of driven wells at Detroit. II Eng & Contr 44:386 N 17 '15

Wells, Artesian. See Artesian wells

Weisbach mantles. See Gas mantles

Wenatchee, Washington

Streets

Wood block pavement in the City of Wenatchee, Wash. F. J. Sharkey. II Eng & Contr 44:300-2 O 30 '15

West, Thomas Dyson, 1851-1915

Foundry industry loses leader in accident. por Foundry 43:287-8 Jl '15

Sketch. por Iron Age 95:1426 Je 24 '15; Iron Tr R 56:1336-6 Je 24 '15; Met & Chem Eng 13:462 Jl '15

Tribute to memory of Thomas D. West. P. L. Simpson. Foundry 43:325+ Ag '15

West

Engineering works of the West. II Eng Rec 72:261-4 Ag 28 '15

Features of engineering in the West. H. F. Stratton. II maps Sibley J 29:139-49, 184-90, 223-7 F-Ap '15

See also Pacific coast

Description and travel

Eothen! C. H. Whitaker. II Am Inst Arch J 3:459-67 N '15

West Jersey and seashore railroad

Third rail and trolley system. J. V. B. Duer. II diags Am Inst E E Pro 34:1237-53 Je '15; Abstract. Elec Ry J 46:58-9 Jl 10 '15

West Virginia mining institute

Annual meeting, Huntington, Dec. 10 and 11, 1914. Colliery 35:387-8 F '15

West Virginia state association of master plumbers

14th annual convention, Charleston, March 16-17. Dom Eng 70:414-15 Mr 27 '15

Western association of electrical inspectors

10th annual meeting, Minneapolis, Minn., Jan. 26. Elec R & W Elec'n 66:267-61 F 6 '15

Western association of short line railroads

Bad features of the present laws regulating mail carriage: letter to congressmen. Ry Age 58:58 Ja 8 '15

Western electric company

Western electric developments in 1914. Elec R & W Elec'n 66:45-7 Ja 2 '15

Western newspaper union

Western newspaper union plant in Chicago. T. Wilson. II plan Power 41:2-5 Ja 5 '15

Western newspaper union solves problem of moving its large plant without interrupting business. J. T. Elliott. II Inland Ptr 54:406-8 D '14

Western red cedar association

9th annual meeting. Elec R & W Elec'n 66:184 Ja 23 '15

Western society of engineers

Annual dinner speeches. W Soc E J 20:56-95 Ja '15

45th annual meeting, Chicago, Jan. 13. Elec R & W Elec'n 66:165 Ja 23 '15

Founding of the Western society of engineers. W. Katta. W Soc E J 20:339-40 Ap '15

Western states water power conference

Ferris bill at water power conference assailed. Eng Rec 72:429+ O 2 '15

State control of water-power. Elec W 66:682, 734-6 S 25-O 2 '15

Westinghouse electric & manufacturing co.

Annual report for the fiscal year ended March 31, 1915. Elec W 65:1286-7 My 22 '15

Relief, compensation and pension system for Westinghouse employees. Elec R & W Elec'n 65:1225 D 26 '14; Same. Elec W 64:1233-4 D 26 '14; Same. Iron Age 94:1497 D 31 '14; Same. Ry R 55:783 D 26 '14; Same. Iron Tr R 56:53 Ja 7 '15

Westinghouse electric developments in the year 1914. Elec R & W Elec'n 66:43-5 Ja 2 '15

Westminster hall, London

Reinforcement for the roof timbers of Westminster hall, England. F. Baines. Eng & Contr 42:172-5 Ag 19 '14

- Weston, Edward, 1850-**
Inventions. L. H. Baekeland. por Sci Am S 79:108-9 F 13 '15
Ninth Perkin medal, presentation. Eng & Min J 89:234-5 Ja 30 '15
Perkin medal award. por J Ind & Eng Chem 7:243-54 Mr '15
Presentation of the Perkin medal to Edward Weston. por Met & Chem Eng 13:111-16 F '15
- Wharves**
Corrosion of steel wharves at Kowloon: abstract. S. H. Ellis. diags Am Soc M E J 37: 123-4 F '15
Experiences with concrete in the republic of Panama. A. P. Crary. 11 diags Eng N 73:214-16 F 4 '15
Municipal steamboat landing at Peoria, Ill. diags plan Eng N 73:15 Ja 7 '15
Municipal wharves and sheds at Los Angeles. 11 diags Eng N 73:324-5 Ap 29 '15
Novel bulkheads for wharves at Jacksonville. H. D. Mendenhall. diags map Eng N 74: 772-4 O 21 '15
See also Docks; Piles and pile driving; also names of cities, subhead Wharves
- Wheat**
Effect of certain organic compounds on wheat plants in the soil. F. W. Upson and A. R. Powell. 11 J Ind & Eng Chem 7:420-2 My '15
See also Flour
- Wheatstone bridge**
Equivalence of Wheatstone bridge to three parallel circuits. A. H. Adams. Elec W 66: 406 Ag 21 '15
Wheatstone bridge for resistance thermometry. C. W. Waldner and others. 11 diags U S Bur Stand Bul 11:571-90 My 27 '15; Summary. J Fr Inst 178:777 D '14
- Wheel chairs, Electric**
Electric rolling chairs. 11 Eng N 73:1094 Je 3 '15
Evolution of the wheel-chair. 11 Sci Am 112: 497-+ My 29 '15
- Wheelbarrows**
Moving brick by wheelbarrow. W. B. Conant. 11 Eng N 74:701 O 7 '15
Safe wheelbarrows and trucks. diag Ind Eng 15:43-4 F '15; Same. Foundry 43:265-6 J1 '15; Same. Iron Tr R 57:386-+ Ag 26 '15; Same cond. 11 Am Ind 15:supl-4 J1 '15
- Wheels**
Pressed steel wheel for factory trucks. 11 Iron Age 96:1183 N 18 '15
Standardization of chilled iron crane wheels; abstracts. F. K. Vial. diags Am Soc M E J 37:147-51 Mr '15; Iron Tr R 55:1083-7-+ D 10 '14
See also Automobiles—Wheels; Axles; Car wheels; Grinding wheels; Machinery; Motor trucks—Wheels; Motor vehicles—Wheels; Tires (automobile); Turbines; Water wheels
- Whetstones**
Whetstones in the United States national museum. Sci Am S 79:276 My 1 '15
White cedar association, Northern. *See* Northern white cedar association
- White mountains**
Improving White mountain forests. W: L. Hall. 11 Am For 21:117-26 F '15
- White pine.** *See* Pine
- White Plains, New York**
Architecture
Winifred Masterson Burke relief foundation; views and plans. Brickb 24:pl 91-6 J1 '15
Hotels
Gedney Farms. Arch Rec 38:696 D '15
Whitney, Willis Rodney, 1868-
Sketch. por Eng M 50:202-3 N '15
Whole wheat flour. *See* Flour
Wilkinsburg, Pennsylvania
Railroads
Pennsylvania track elevation through Wilkinsburg. 11 plans Ry Age 59:654-8 O 8 '15
Williams, Richard Richardson, 1843-1915
Sketch. por Iron Age 96:801 O 7 '15
- Willow.** *See* Osiers
- Wilmington, Delaware**
Water supply
Water supply at Wilmington, Delaware. E. M. Hoopes, Jr. and J. M. Caird. 11 Am Water Works Assn J 1:111-34 Mr '14; Same cond. Eng & Contr 42:210-12 Ag 26 '14
- Winchester, England**
Winchester in war-time. H: Winslow. 11 Am Inst Arch J 2:561-4 D '14
- Wind bracing.** *See* Wind pressure
- Wind motors**
Wind motors; abstract. M. Drzewiecki. Am Soc M E J 37:403 J1 '15
- Wind power.** *See* Windmills
- Wind pressure**
Notes on wind pressure. R. G. Keeyill. Engineer 119:393 Ap 16 '15
Structural damage slight in New Orleans storm. J. F. Coleman and W. H. P. Creighton. Eng N 74:765-6 O 14 '15
Waste of metal in mill-building columns. C. L. Christensen. Eng N 73:590-1 Mr 25 '15
Why suction should be considered in designing for wind stresses. A. Smith. Eng N 73: 545 Mr 18 '15
Wind-bracing requirements in municipal building codes. R. Fleming. Eng N 73:485-7 Mr 11 '15
Wind pressure formulas and their experimental basis. R. Fleming. Eng N 73:160-3 Ja 28 '15
Wind pulls rivets in stack brace. 11 Power 42:426 S 21 '15
Wind stresses and factors of safety. R. D. Coombs. Eng N 73:359 F 18 '15
Wind stresses in highway bridges. R. Fleming. Eng N 73:372-5 F 25 '15
Wind stresses in railroad bridges. R. Fleming. Eng N 73:252-6 F 11 '15
Wind stresses in skew bridges. J. P. J. Williams. Eng N 73:622-6 Ap 1 '15
Wind stresses in steel mill-buildings. R. Fleming. diags Eng N 73:210-14 F 4 '15
Wind stresses in the steel frames of office buildings. A. Smith. tables pls W Soc E J 20: 341-64 Ap '15
Wind stresses in the steel frames of office buildings. W. M. Wilson and G. A. Maney. tables 11 U Eng Exp Sta Bul 80:1-38 '15; Abstract. Eng Rec 72:231-2 Ag 21 '15
Wind stresses in the steel frames of office buildings; with discussion. W. M. Wilson. tables pls W Soc E J 20:366-90 Ap '15
- Wind resistance.** *See* Air resistance
- Wind shields**
Wind-shield cleaner invented by Prince Henry. 11 Sci Am 113:84 J1 24 '15
- Wind wheels.** *See* Windmills
- Windmills**
Small aero-electric plant. E. H. Williamson, Jr. 11 Sci Am 113:200-1 S 4 '15
- Window dressing.** *See* Show windows
- Window frames**
Details of pocket window frame. W. S. Wilkin. diags Bldg Age 37:56-7 Ag '15
Window frame with glass louvers. diags Bldg Age 37:73-4 Ja '15
- Window seats**
Details of seat for a bay window. J: Wavlek, Jr. diags Bldg Age 37:33-4 Ag '15
- Windows**
Casement windows: a comparison with double hung windows. Bldg Age 37:66 Ja '15
Planning for daylight and sunlight in buildings; with discussion. L. B. Marks and J. E. Woodwell. biblog 11 diags Illum Eng Soc 9: 643-86. no 7 '14
Short method for calculating glass surface. E. M. Shealy. Dom Eng 72:286 S 4 '15
Wind leakage. F. K. Davis. Heat & Ven 12:48-9 Ap '15
Window over entrance, custom house, Salem, Mass.; measured drawing. G. Robb. Brickb 24:pl 9 S '15
See also Bay windows; Glass; Show windows
- Windows, Cloth.** *See* Cloth windows

Wine

Contributions of the chemist to the wine industry. C. S. Ash. *J Ind & Eng Chem* 7:273-4 Ap '15

Winnipeg, Manitoba**Water supply**

Construction features of the Greater Winnipeg water works. J. H. Fuertes. *diags Eng & Contr* 44:377-80 N 10 '15

Curves on Winnipeg aqueduct built with straight sections of forms. *diags Eng Rec* 72:657-8 N 27 '15

Direct control over construction materials is feature of 100-mile Winnipeg aqueduct. *Il Eng Rec* 71:594-6 My 8 '15

Progress on the greater Winnipeg aqueduct. *Il Eng N* 73:230-1 F 4 '15

Winter construction

Erecting a building under a tent in winter. *Il Eng N* 73:394 F 25 '15

See also Concrete construction in winter

Wire

Copper wire tables. *U S Bur Stand Circ* 31:1-78 '14

Effective resistance and inductance of iron and bimetallic wires. J. M. Miller. *diags U S Bur Stand Bul* 12:207-67 N 8 '15

Forming a wire in the automatic screw machine. E. Whitney. *diags Mach* 21:294-5 D '14

Handy wire straightener. *diag Eng & Min J* 100:884 N 27 '15

Preventing kinking in handling wire from coils. J. G. Koppel. *Il Elec Ry J* 46:66 JI 10 '15

Tests of splices in galvanized iron wire. T. Croft. *Il Elec R & W Elec'n* 67:716-17 O 16 '15

Wire products and wire-working machines. E. R. Miner. *Il Mach* 21:389-92 Ja '15

See also Barbed wire entanglements; Cables; Electric wire and wiring

Wire, Trolley. See Trolley wire**Wire rope**

Armored wire rope. *Eng & Min J* 100:191 JI 81 '15

Design and construction of aerial ropeways. *diags Engineer* 120:79-81 JI 23 '15; Excerpt (Traction rope). *Eng & Min J* 100:475 S 18 '15; Excerpt (Track ropes). *Eng & Min J* 100:618 S 25 '15

Large-sized drums and sheaves give wire rope economy. *diag Eng Rec* 72:582 N 6 '15

Oil drillers develop good wire rope practice—do not jerk loads. *Il Eng Rec* 72:673 N 27 '15

Steel-wire hoisting ropes; rule for finding the load stress and the required diameter. F. W. Sperr. *Colliery* 36:606-7 Je '15

Wire cables of various types and materials tested by U. S. Bureau of standards. *Il diag Eng Rec* 72:587-8 N 6 '15

Wire rope. *Sci Am* 112:639 Je 26 '15

Wire rope clips should be put on with saddle next main part. *Eng Rec* 72:269 Ag 28 '15

See also Cables

Wire-working machinery

New heavy wire drawing machine. *Il Iron Tr R* 67:404 Ag 26 '15

Wire bending fixture. G. P. Breitschmid. *diag Mach* 21:408 Ja '15

Wire products and wire-working machines. E. R. Miner. *Il Mach* 21:389-92 Ja '15

Wireless telegraph

Auxiliary radio equipment on steamer Howard tested. *Elec R & W Elec'n* 67:979 N 27 '15

Baltimore municipal White truck has wireless equipment. *Il Automobile* 31:1023 D 3 '14

Commercial wireless apparatus. *Il diag Elec W* 66:882-3 O 16 '15

Communicating over great distances; the invention of the telegraph, telephone and wireless telegraphy. *Il Sci Am* 112:573-4 Je 5 '15

Conditions affecting the variations in strength of wireless signals. E. W. Marchant. *diags Inst E E J* 53:329-40 Mr 1 '15; Abstract. *Eng M* 49:266-7 My '15; Summary. *Elec R & W Elec'n* 66:446 Mr 6 '15; Discussion. *Inst E E J* 53:340-8 Mr 1 '15

Considerations on the sensitiveness of the heterodyne receiver in wireless telegraphy. M. Latour. *Elec W* 65:1089 Ap 24 '15

Construction of a multiple tuner; complete working drawings and specifications for the amateur. C. L. Sears. *diags Sci Am S* 80:68-70 JI 31 '15

Continuous waves in long distance radio telegraphy. L. F. Fuller. *bibliog Il Am Inst E E Pro* 34:567-85 Ap '15; Abstract, with discussion. *Elec R & W Elec'n* 66:736-7 Ap 17 '15; Abstract, with discussion. *Elec W* 65:983-4 Ap 17 '15; Discussion. *Am Inst E E Pro* 34:2927-40 D '15

Device for receiving wireless time signals. *Il diag Elec W* 65:813-19 Mr 27 '15

Directing electromagnetic waves. A. Artom. *Elec W* 66:351-2 Ag 14 '15

Discussion of the proposed work to be undertaken by the International commission on wireless telegraphy. W. Duddell. *Elec W* 65:347-8 F 6 '15

Do the waves of wireless telegraphy affect organic life? C. Abel-Musgrave. *Elec W* 66:710 S 25 '15

Double-audion type of receiver; description of the equipment used for the reception of continuous radiotelegraphic waves at station in North Dakota. A. H. Taylor. *Elec W* 65:652-5 Mr 13 '15

Electrical constants of antennas. L. Cohen. *diag Elec W* 65:286-3 Ja 30 '15

Function of the earth in radio-telegraphy. J. A. Fleming. *Sci Am S* 79:29 Ja 9 '15

Home-made wireless photo-recording set. *diags Sci Am S* 80:92-3 Ag 7 '15

Longitudes by wireless telegraphy. F. B. Littell. *Sci Am* 112:882-3 Ap 24 '15

Photo-electricity; the intimate relations of light and electricity. J. A. Fleming. *Sci Am S* 80:18-19 JI 10 '15

Pure electron discharge and its applications in radio telegraphy and telephony. I. Langmuir. *diags Gen Elec R* 18:327-39 My '15; Abstract. *Elec W* 65:1247 My 15 '15

Quantitative experiments in radiotelegraphic transmission. L. W. Austin. *U S Bur Stand Bul* 11:69-86 N 15 '14

Radio generator for amateurs. F. H. Ward. *Il Sci Am S* 80:36 JI 17 '15

Radio-telegraphic investigations; committee report of section A of the British association; abstracts. *Engineer* 120:279 S 17 '15; *Elec R & W Elec'n* 67:676-6 O 9 '15

Radiotelegraphy and radiotelephony. J. L. Hogan, jr. *Elec W* 65:27-8 Ja 2 '15

Radiotelegraphy without elevated antennas. C. A. Culver and J. A. Riner. *Elec W* 65:723-6 Mr 20 '15; Abstract. *Eng M* 49:268-9 My '15

Recent advances in wireless measuring instruments. H. T. Wade. *Il diags Sci Am* 113:356 O 23 '15

Recent electrical progress. *Engineer* 119:34 Ja 8 '15

Records of radio time signals made with a physiological recorder. C. W. Waggoner. *Il Sci Am S* 79:152 Mr 6 '15

Resistance of radiotelegraphic antennas. *Elec R & W Elec'n* 67:427, 905 S 4, N 13 '15

Review of some notable developments of the past year. *Sci Am S* 79:99 F 12 '15

Sound wheel, a novel wireless detector. *Il Sci Am* 112:384 Ap 24 '15

Storage batteries for radio service. *Elec R & W Elec'n* 66:352 F 20 '15

Strength of radio signals. *Elec R & W Elec'n* 67:335 Ag 21 '15

Ultraudion detector for undamped waves. L. de Forest. *Il Elec R & W Elec'n* 66:357-8 F 20 '15; Same. *Elec W* 65:465-6 F 20 '15

Washington-Paris longitude by radio signals; a valuable application of wireless communication. F. B. Littell and G. A. Hill. *Sci Am S* 79:266-7 Ap 24 '15

Wireless inventions and the press; portable apparatus. *Sci Am* 113:462 N 27 '15

Wireless-telegraphy antenna for long waves. *diags Elec W* 66:412 Ag 21 '15

Wireless transmission. Sibley J 29:109 Ja '15; Same. *Sci Am S* 79:33 F 6 '15

Wireless transmission of energy. E. Thomson. *diags Sci Am S* 79:252-3, 270-1 Ap 17-24 '15; Same. *Gen Elec R* 18:316-27 My '15

Year in the electrical industry. *Elec R & W Elec'n* 66:3 Ja 2 '15

See also Electric waves

Wireless telegraph for railroads

Radio telegraphy and telephony for railroads. J. L. Hogan, jr. *Il* *diags Elec W* 66:570-2 S 11 '15

Wireless telegraph and telephone on the D. L. & W. R. R.; abstracts. L. B. Foley. *Il* *Ry R* 56:491-3 Ap 10 '15; *Ry Age* 53:378 F 26 '15; *Eng M* 48:253-6 My '15

Wireless telegraph and wireless telephone on the Union Pacific R. R. *Il* *Ry R* 55:587-91 N 14 '14; Abstract. *Eng M* 48:585-3 Ja '15

Wireless telegraphy and railroading. H. D. Schedler. *Il* *Sci Am* 112:338-4 Ap 10 '15

Wireless telegraph in war

Our army wireless automobiles. C. H. Claudy. *Il* *Sci Am* 112:478 My 23 '15

Portable radio equipment of the United States army. *Il* *Elec W* 66:184 J1 24 '15

Radio telephone and telegraph equipment on a motorcycle. *Il* *Sci Am* 112:293 Mr 27 '15

Science in the war and after the war. J. A. Fleming. *Sci Am S* 80:339 N 27 '15

Wireless telegraph stations

Clean-up work after erecting three 600-ft. radio towers. *Eng N* 74:23 J1 1 '15

Factors determining the efficiency of radio stations. R. Pfund. *Eng M* 49:257-8 My '15

Foundations for high towers at Darien. C. Z. I. W. Dye. *Il* *diag Eng N* 73:1178-9 Je 17 '15

Method of erecting Marconi masts. L. H. Peebles. *Il* *diag Eng N* 73:1182-4 Je 10 '15

Radio station for Society Islands near completion. *Elec R & W Elec'n* 67:988 N 27 '15

600-ft. self-supported radio towers at Darien. C. Z. I. W. Dye. *Il* *diag Eng N* 73:1228-31 Je 24 '15

Towers for radio-telegraph stations. *Il* *diags Engineer* 119:427-8 Ap 30 '15

Trouble near wireless stations. *Elec R & W Elec'n* 67:900 N 13 '15

Wireless telephone

Colin-Jeanne wireless telephone apparatus. *Il* *Elec R & W Elec'n* 66:1168 Je 19 '15

Device for wireless telephony. Iron Age 96:237 J1 29 '15

First public use of the de Forest lamp as an oscillating audion. L. de Forest. *Il* *Elec R & W Elec'n* 67:908 N 13 '15

Future of radio telephony. E. H. Colpitts. *Il* *Sci Am* 113:485-4 D 4 '15

Latest steps in radio telephony. H. Pender. *Il* *map Eng M* 50:373-81 D '15

Long distance wireless telephony; distances achieved in recent tests. *map Sci Am* 113: 319 O 9 '15

Marconi's wireless telephone. J. A. White. *Il* *Sci Am* 112:450 My 15 '15

New promise for wireless telephony; invention of Professor Pupin. *Eng M* 50:444 D '15

Principles of radio-telephony. J. L. Hogan, jr. *Il* *Sci Am* 112:386-4 Mr 27 '15

Pure electron discharge and its applications in radio telegraphy and telephony. I. Langmuir. *diags Gen Elec R* 18:327-39 My '15; Abstract. *Elec W* 65:1247 My 15 '15

Radio telegraphy and telephony for railroads. J. L. Hogan, jr. *Il* *diags Elec W* 66:570-2 S 11 '15

Radiotelegraphy and radiotelephony. J. L. Hogan, jr. *Elec W* 65:27-8 Ja 2 '15

Radiotelephony. W. C. White. *Gen Elec R* 18: 38-41 Ja '15; Same. *Sci Am S* 80:146-7 S 4 '15

Voice carried 4900 miles by radio. *Il* *map Elec W* 66:788-91 O 9 '15

Wireless auxiliary to telephone system. *Il* *Elec R & W Elec'n* 66:1169 Je 19 '15

Wireless telegraph and telephone on the D. L. & W. R. R. L. B. Foley. *Il* *Ry R* 56:491-3 Ap 10 '15

Wireless telegraph and wireless telephone on the Union Pacific R. R. *Il* *Ry R* 55:587-91 N 14 '14; Abstract. *Eng M* 48:585-3 Ja '15

Wireless telephony. *Sci Am S* 79:121 F 20 '15

Wireless waves

Starting an automobile by wireless waves. *Sci Am* 113:323 O 9 '15

Wisconsin

Increased taxation in Wisconsin and its effect upon public service companies. E. Gruhl. *Elec W* 65:259 Ja 23 '15; Same. *Elec Ry J* 45:234 Ja 30 '15

Highway commission

Organization and standards of the Wisconsin highway commission. *Il* *diags Eng & Contr* 42:398-403 O 28 '14

Industries and resources

Mining and milling of lead and zinc ores in the Wisconsin district, Wisconsin. C. A. Wright. *Il* *plan U S Bur Mines Tech Pa* 95: 1-38 '15

Wisconsin electrical association

7th annual convention, Milwaukee, Jan. 20-22. *Elec Ry J* 45:232-5 Ja 30 '15

7th annual convention, Milwaukee, Jan. 21 and 22. *Elec R & W Elec'n* 66:206-9 Ja 30 '15

Wisconsin master plumbers association

Annual convention, Milwaukee, Wis., January 19-20, 1915. *Metal Work* 83:189-91 Ja 28 '15

21st annual convention in Milwaukee. *Dom Eng* 70:148-50 Ja 30 '15

Wisconsin University

University promotes engineering work without displacing consulting engineer. G. R. Bascom. *Eng Rec* 72:47-8 J1 10 '15

Witwatersrand. See Gold mines and mining—Transvaal

Wolframite

Wolframite in lower Burma. E. M. Lefroy. *Eng & Min J* 99:684 Ap 17 '15

Woman**Employment**

British and French women make shells; photographs. *Iron Tr R* 57:686-7 O 7 '15

Efficiency of French women as railway workers. W. S. Hatt. *Il* *Ry Age* 59:948-5 N 19 '15

Employment of women as machinists. *Il* *Engineer* 120:218 S 3 '15; Excerpt. *Eng M* 50: 451 D '15

Employment of women in engineering workshops. *Engineer* 120:181-2 Ag 20 '15

Labour after the war—employment of women; abstract of report to the British association. *Engineer* 120:292-3 S 24 '15

Tramways during war times. J. Dalrymple. *Elec Ry J* 46:880 O 23 '15

Women as successful master plumbers. B. H. Albee. *Il* *Dom Eng* 73:71-2 O 16 '15

Women conductors for London. *Elec Ry J* 46: 962 N 6 '15

Women conductors in Berlin. *Il* *Elec Ry J* 46: 675 O 2 '15

Women fast taking the places in tramway service of men needed at the front. *Elec Ry J* 46:38 J1 8 '15

Women railway employees in England. *Il* *Ry Age* 58:1120 My 28 '15

Wood, Henry A. Wise, 1865-

Sketch. *por Eng M* 50:213 N '15

Wood

Lightest known wood. *Sci Am S* 79:96 F 6 '15

Modern uses of wood. H. von Schrenk. *Il* *diags W Soc E J* 20:27-44; Discussion. 20: 44-51 Ja '15

Musical woods. *Sci Am S* 78:355 D 5 '14

Tulip or yellow poplar tree. *Il* *Am For* 21: 833-40 Ag '15

Use of native woods for interior finish. C. M. Price. *Il* *Brickb* 24:217-22, 239-42, 285-9 S-N '15

See also Forests and forestry; Lumber; Poles; Timber; Trees; also names of trees, e. g. Cedar, Chestnut, Cypress, Douglas fir, Hemlock, Maple, Pine, Redwood

Testing

Mechanical properties of teak wood; abstract. A. Weiskopf. *Am Soc M E J* 87:289-90 My '15

Rocky mountain mine timbers. N. de W. Betts. *diag U S Agric Bul* 77:1-34 '14

Strength tests of structural timbers treated by commercial wood-preserving processes. H. S. Betts and J. A. Newlin. *U S Agric Bul* 286:1-14 '15

Test of long-submerged hemlock timber. T. R. Lawson. *Il* *Epg N* 73:159 Ja 23 '15

Wood as food

Edible wood. *Sci Am* 113:171 Ag 21 '15

Edible wood. *Sci Am S* 80:144 Ag 28 '15

Wood as fuel

Wood and coal as fuel for steam boilers. H. B. Reynolds. *tables Sibley J* 30:14-20 O '15

Wood as fuel—Continued

Wood as a fuel for mine power plants. E. A. Holbrook. *diag Eng & Min J* 99:645-7 Ap 10 '15

Wood ashes

Potash from wood and plant ashes. H. Bradley. *diag Met & Chem Eng* 18:841-6 N 15 '15

Wood borers. See Borers (animals)**Wood distillation**

Chemical engineering of the hardwood distillation industry. J. R. Withrow. *J Ind & Eng Chem* 7:912-13 N '15; Same. *Met & Chem Eng* 18:797-9 N 1 '15

Composition of wood turpentine. M. Adams. *J Ind & Eng Chem* 7:957-60 N '15

Contributions of the chemist to the hardwood distillation industry. S. W. Katzenstein. *J Ind & Eng Chem* 7:940-2 N '15

Distillation of Douglas fir at high temperatures. B. Tremper. *J Ind & Eng Chem* 7:926-7 N '15

Hardwood distillation industry in America. E. H. French and J. R. Withrow. *II Met & Chem Eng* 13:80-9 Ja '15; Same. *J Ind & Eng Chem* 7:47-55 Ja '15; Discussion. 7:55-8, 899-900 Ja, O '15

Oils of the coniferae. A. W. Schorger. *II J Ind & Eng Chem* 6:723-7, 809-10, 893-5; 7:24-8 S-N '14, Ja '15

Preliminary experiments on the effect of temperature control on the yield of products in the destructive distillation of hardwood. R. C. Palmer. *diag J Ind & Eng Chem* 7: 863-9 Ag '15

Steam generation in a wood-distilling plant. L. Eddy. *diag Power* 41:846 Jc 22 '15

Waste pine wood utilization. J. E. Teeple. *J Ind & Eng Chem* 7:929-30 N '15

What chemistry has done to aid the utilization of wood. S. F. Acres. *J Ind & Eng Chem* 7:913-15 N '15

Yield of by-products from destructive distillation of some western conifers. H. K. Benson and M. Darrin. *J Ind & Eng Chem* 7:916-18 N '15

Wood finishing

Care and use of the cabinet scraper. C. A. King. *diag Bldg Age* 37:37-8 Jc '15

Education in woodfinishing. W. F. Comstock. *II Arch & Bldg* 47:65-6 F '15

Electric equipment for painting without a brush. *II Elec W* 66:1050 N 6 '15

Electrically operated rubbing and polishing machine. *II Elec R & W Elec'n* 67:908 N 13 '15

Features of the home of redwood. J. H. Browne. *II Bldg Age* 37:38-9 Ag '15

Hints on painting exterior woodwork. *II Bldg Age* 37:65-6 Jc '15

Wood oil, Chinese. See Chinese wood oil**Wood pipes. See Pipes, Wood****Wood preservation**

Air seasoning of ties. A. H. Noyes. *Ry R* 56:111 Ja 23 '15

American railway engineering association committee report. *Ry R* 56:399-400 Mr 20 '15

American wood preservers' association: abstracts of papers presented at the 11th annual convention, Chicago, Jan. 19-21. *Eng Rec* 71: 105-8, 144-5 Ja 23-30 '15

American wood preservers' association 11th annual convention, Chicago, Jan. 19-21. *Elec Ry J* 45:181-2 Ja 23 '15

American wood preservers' convention at Chicago, Jan. 19-21, 1915. *Ry Age* 58:158-63 Ja 22 '15

American wood preservers' convention; modifications made in committees' recommendations. *Elec Ry J* 45:237 Ja 30 '15

Annual meeting of the American wood preservers' association. *Eng N* 73:182-3 Ja 28 '15

Behavior of treated ties in alkali soils. *Elec Ry J* 46:1002 N 13 '15

Carbolineum and creosots. H. H. Alcock. *Am Gas Light J* 103:58-9, 125 Jc, Ag 23 '15

Carbolineum and creosots. S. R. Church. *Am Gas Light J* 103:103 Ag 18 '15

Creosoting of cross ties as practiced by American railroads. A. C. Steinmayer. *II Assn Eng Soc J* 54:110-20 Mr '15

Economical use of wood preservation of timber. E. W. Bright. *Elec Ry J* 44:1351-2 D 19 '14

Effect of steaming process of creosoting on strength of Oregon fir piling; abstracts. H. B. Macfarland. *Eng Rec* 70:487-8 O 31 '14; *Eng & Contr* 42:481-3 N 18 '14; Summary. *Eng N* 73:863 O 29 '14; *Ry Age* 57:1156 D 16 '14

Effect of the war on timber preservation. *Ry Age* 58:843-5 Ap 15 '15

Effect of zinc chloride on timber strength. *Elec Ry J* 46:73 Jc 10 '15

Effectiveness of wood preservatives. *Ry R* 57: 79 Jc 17 '15

Experiences in creosoted wood block paving. E. R. Dutton. *Good Roads n s* 10:266-7 N 6 '15

Mixing tar with creosots. P. C. Ralby. *Ry R* 56:242-7 F 20 '15

Modern application of wood preserving methods. E. A. Sterling. *Am For* 21:878-9, 937-8 Ag-S '15

More about wood preservatives. E. A. Sterling. *Ry Age* 57:1135-6 D 18 '14

Only creosots properly applied withstands teredo. *Eng Rec* 71:209-10 F 13 '15

Preservation of mine timber. H. A. Appel. *Colliery* 35:481-3 Ap '15

Preservative treatment of timber. H. F. Weiss and C. H. Teesdale. *Elec Ry J* 46:625-6 S 25 '15

Preservative treatment of timber. J. M. Goldman. *Colliery* 35:814-17 Ja '15

Results obtained from the preservative treatment of telephone poles. F. L. Rhodes and R. F. Hosford. *bibliog II Am Inst E E Pro* 34:2343-87 O '15; Abstracts. *Elec Ry J* 46: 879 O 23 '15; *Elec W* 66:1031 N 6 '15

Specification for a coal-tar creosote solution. H. Von Schrenk and A. L. Kammerer. *Eng Rec* 71:144 Ja 30 '15; Same. *Ry Age* 58:160-1 Ja 22 '15

Specification for a creosote-coal tar solution. *Eng Rec* 71:398 Mr 27 '15

Specification for zinc chloride treatment. W. F. Goltra. *Ry Age* 58:459 Mr 13 '15

Strength tests of structural timbers treated by commercial wood-preserving processes. H. S. Betts and J. A. Newlin. *U S Agric Bul* 286: 1-14 '15

Tests of wood preservatives. H. F. Weiss and C. H. Teesdale. *II U S Agric Bul* 145:1-20 '15

Tie preservation on the Baltimore & Ohio R. R.; abstracts. F. J. Angier. *Ry Age* 59: 537-8 S 17 '15; *Eng & Contr* 44:396-7 N 17 '15; *Ry R* 57:630-3 N 13 '15

Tie treating on the Boston & Worcester street railway. *II Elec Ry J* 45:678-9 Ap 3 '15

Tie treatment in British India. *II Ry R* 56: 248-9 F 20 '15

Toxicity of various wood preservatives. R. M. Fleming and C. J. Humphrey. *II J Ind & Eng Chem* 7:652-3 Ag '15

Treated timber for factory construction. *Eng N* 73:183-4 Ja 23 '15

Treated timber for factory construction. F. J. Hoxie. *Eng Rec* 71:107-8 Je 23 '15; Same. *Eng & Contr* 43:563-4 Je 23 '15; Same cond. *Eng M* 48:898-8 Mr '15

Wood preservation statistics. *Ry Age* 58:1447-8 Je 18 '15

Wood preservers' convention, Jan. 19-21, 1915. *Ry R* 56:115-17 Ja 23 '15

Wood preserving department. See monthly numbers of the American forestry

Work and some accomplishments of the forest products laboratory, Madison, Wis. H. F. Weiss. *W Soc E J* 19:946-51 D '14

See also Creosoting; Dry rot

Wood preservers' association, American. See American wood preservers' association

Wood pulp

Evolution of the pulp and paper industry. T. J. Keenan. *Sci Am S* 80:131 Ag 28 '15

Wood using industries

Annual consumption of wood. *Am For* 20:897 D '14

Wood waste

Manufacture of ethyl alcohol from wood waste; the hydrolysis of white spruce. F. W. Kressmann. *J Ind & Eng Chem* 7:920-2 N '15

Manufacture of ethyl alcohol from wood waste; western larch as a raw material. F. W. Kressmann. *J Ind & Eng Chem* 7:922-3 N '15

Wood waste—Continued

- Methods of disposing of refuse from wood-working plants. F. O. Alton. Elec R & W Elec'n 67:556-7 S 25 '15
 Tannin content of Pacific coast conifers. H. K. Benson and T. G. Thompson. J Ind & Eng Chem 7:916-16 N '15
 Use of ammonium hydroxide for the extraction of rosin from wood. H. K. Benson and H. N. Crites. J Ind & Eng Chem 7:918-20 N '15
 Waste pine wood utilization. J. E. Teeple. J Ind & Eng Chem 7:929-30 N '15
 What chemistry has done to aid the utilization of wood. S. F. Acree. J Ind & Eng Chem 7:918-15 N '15
 Yield of by-products for destructive distillation of some western conifers. H. K. Benson and M. Darrin. J Ind & Eng Chem 7:916-18 N '15

See also Sawmills; Wood distillation

Woodcraft

- Boy scouts and forests. K. W. Woodward. J Am For 21:103-3 F '15

Woodfinishing. See Wood finishing**Woodlots**

- Woodlot forestry. S. B. Detwiler. J Am For 21:571-4 Ap '15

Woodward, Robert Simpson, 1849—Sketch. por Eng M 50:210-11 N '15**Woodwork**

- Hints on the use of glue. W. H. Wilkin. Bldg Age 37:63-4 N '15

See also Cabinet making; Furniture; Wood finishing

Woodworking machinery

- Electricity in the lumber industry. E. F. Whitney. J diag plans Am Inst E E Pro 83:1823-62 D '14

- New wooden barrel machine. J diag Iron Age 95:794-5 Ap 8 '15

- Wood-working plant at a ship-building yard. J diag Engineer 120:230-2, 243-5, 250 S 3-10 '15

See also Lathes; Planing machines; Sawmills; Saws

Woodworking shops

- Economical motor service in lumber mill. J Elec W 65:944 Ap 10 '15

- Electricity in woodworking plants. J Elec R & W Elec'n 66:893-7 My 15 '15

- Methods of disposing of refuse from wood-working plants. F. O. Alton. Elec R & W Elec'n 67:556-7 S 25 '15

- Motors operating at 3600 r.p.m. directly connected to woodworking surfaces. J Elec W 66:643-4 S 18 '15

- Wood-working plant as a ship-building yard. J diag Engineer 120:230-2, 243-5, 250 S 3-10 '15

Wool

- Better preparation of American wool for market. J Textile World 49:316-18 Je '15

- Bettering the wool for American mills. Textile World 49:153-4 My '15

- Difference in weight between raw and clean wools. W. S. Lewis. U S Bur Stand Tech Pa 57:1-5 '15; Abstract. J Br Inst 180:473 O '15

- Wool growing in the United States. Textile World 48:313-14 D '14

See also Dyes and dyeing—Wool; Woolen and worsted manufacture; Worsted

Wool finishing

- Dyeing and finishing wool fabrics. F. Sadler. J diag Textile World 49:365-8 Je '15

- Fancy cut faced woolens. J Textile World 49:439-40 J1 '15

- Finishing place dyed woolens. Textile World 48:528-7 F '15

- Finishing process for wool goods. Textile World 50:112-13 O '15

- Luster finish. Textile World 49:553-4 Ag '15

- Shearing wool goods. J diag Textile World 49:523-5 Ag '15

- Wool growers. National association of. See National association of wool growers

Wool scouring

- Degreasing wool. J diag Textile World 48:805-7 D '14

- Experience gained in the treatment of the wastes from the scouring of wool. H. R. Crohurst and A. D. Weston. Eng & Contr 44:370-6 N 10 '15

- Process for scouring wool. Textile World 48:654 Mr '15

Wool spinning. See Woolen and worsted spinning**Wool tariff**

- Component material of chief value. J Textile World 50:51-4 O '15

Wool trade

- British embargo and the American wool supply. Textile World 48:275-7 D '14

- British embargo on wool trade. Textile World 48:399-402 J1 '15

- British wool embargo. Textile World 48:559-62 Mr '15

- Domestic supply of wool and dyestuffs. C. E. Wry. Textile World 49:95-8 Ap '15

- English market for tops and worsted yarns. Textile World 49:506-8 Ag '15

- Importing wool through the textile alliance. Textile World 49:145-6 My '15

- Moisture regain for worsted tops. Textile World 49:559-61 Ap '15

- Movement of wool in England and Spain. D. E. Dooty. Textile World 48:480-1 F '15

- National association of wool growers; 51st annual meeting at Salt Lake City, Nov. 12-14, 1914. Textile World 48:288-6 D '14

- Wool and the British Empire. Textile World 48:586-8 Mr '15

- Wool grower and the wool trade. Textile World 49:492-4 Ag '15

- Woolen and worsted fabrics in China. T. Sammons. Textile World 49:472-5 J1 '15

See also Wool tariff

Woolen and worsted machinery

- Dunn crabbing and lustering machine. J diag Textile World 49:373-4 Je '15

- Fancy cut faced woolens. J Textile World 49:439-40 J1 '15

Woolen and worsted manufacture

- Electric driving of woolen mills. J. F. Crowley. Ind Eng 15:81-3 Ag '15

- Estimating the cost of wool goods in English mills. Textile World 49:419-24 J1 '15

- Making of Scotch tweeds. T. Welsh. Textile World 48:398-400, 501-3 Ja-F '15

- Removing odors from wool. Textile World 50:100 O '15

- Shoddy in woolen fabrics. K. B. Lamb. J1 Textile World 49:154-6 My '15

See also Textile industry and fabrics; Wool; Wool finishing

Cost

- Estimating the cost of woolen goods. Textile World 48:576-7; 49:92-4 Mr-Apr '15

- Woolen and worsted overseers. National association of. See National association of woolen and worsted overseers

Woolen and worsted spinning

- Spinning of woolen yarn. Textile World 50:96-7 O '15

- Woolen mills. See Woolen and worsted manufacture; Textile mills

Woolworth building, New York

- Details of Woolworth tower lighting. J Elec R & W Elec'n 66:1048-9 Je 5 '15

- New York's greatest lighting spectacle. C. W. Person. J Sci Am 112:171 F 20 '15

Worcester, Massachusetts**Architecture**

- First church of Christ, Scientist. J plans Brickb 24:pl 89-90 Je '15

- Large market building at Worcester, Mass. J plans Brickb 24:191-2 Ag '15

Railroads

- Boston & Albany railroad improvements at Worcester, Mass. L. G. Morphy. J Boston Soc C E J 1:481-98 N '14

Worcester polytechnic institute

- Washburn shops of the Worcester Polytechnic institute. G. I. Alden. Am Soc M E J 37:391-4 J1 '15

Words, Compound. See Compound words

- Working classes. See Labor and laboring classes
- Workmen's compensation
 Compensation laws and accidents. El. N. Zern. Colliery 35:483-5 Mr '15
 Compensation laws and married men. Bldg Age 37:55-6 Ja '15
 Montana workmen's compensation law. Eng & Min J 99:1069 Je 19 '15
 Principal provisions of the employes' compensation bill pending in the Pennsylvania legislature. Iron Tr R 56:775 Ap 15 '15
 Suggestions for a uniform state workmen's compensation law by the National civic federation committee. Am Gas Light J 102:92 F 8 '15
 Tendencies toward inefficiency in legislation. R. Walker. Ry Age 58:219-20 F 5 '15
 Wisconsin compensation law. C. Muskat. Elec Ry J 45:234-5 Ja 30 '15
 Workman's compensation in Pennsylvania. D. A. Reed. Elec Ry J 45:980-1 My 22 '15
 Workmen's compensation insurance; abstracts. W. G. Cowles. Elec W 65:1533 Je 12 '15; Elec R & W Elec'n 66:1113 Je 12 '15
See also Employers' Liability
- Worm gearing. See Gearing, Worm
- Worry
 Physiology of worry. El. D. Forrest. Sci Am S 79:21-2 Ja 9 '15
- Worsted
 Quality numbers for worsted tops. Textile World 48:490-2 F '15
- Wounds
 Colloidal gold for infected wounds. Sci Am 113:234 S 11 '15
 Massage in the after-treatment of the wounded. J. B. Mennell. Sci Am S 80:358 D 4 '15
 New method of disinfecting wounds. Sci Am S 80:111 Ag 14 '15
See also Surgery
- Wrecking
 Felling a brick chimney. C: A. Mead. Il Eng N 73:400-1 F 25 '15
 Methods and equipment used in wrecking a 101-ft. steel stack. Il Eng & Contr 44:305 O 20 '15
 Methods pursued in tearing down a large building. J. Rosenzweig. diag Eng N 73:666-8 Ap 8 '15
 Razing a brick chimney. Il Power 41:374 Mr 16 '15
 Razing a 400-ton brick chimney. Il diag Eng N 72:1266 D 24 '14
 Safe methods of wrecking buildings. diags Eng & Contr 43:98-100 F 3 '15
 Tearing down a 250-ft. reinforced-concrete chimney at Philadelphia. Il Eng N 73:73 Ja 14 '15
 Wrecked ship's backbone broken with dynamite. Il Eng Rec 72:191-2 Ag 14 '15
See also Bridge removal; Salvage
- Wrecking cars
 Electric steam tunnel crane. Il Eng & Contr 43:184 F 24 '15; Elec Ry J 45:427-8 F 27 '15; Iron Age 95:451 F 25 '15; Ry Age 58:369-70 F 26 '15; Ry R 56:230-1 F 27 '15; Sci Am S 79:285 My 1 '15
- Wren, Sir Christopher, 1632-1723
 Church towers, steeples, and spires of Sir Christopher Wren. El. R. Phillips. Il Brickb 24:185-9, 228-32 Ag-S '15
- Wrenches
 Hayward combination wrench for pipes and nuts. Il Iron Age 98:411 Ag 19 '15; Eng & Min J 100:518 S 25 '15
 Quick-acting screwless wrenches. Il Iron Age 95:995 My 6 '15

Testing

- Hydraulic wrench testing device. Il Mach 22: 144 O '15

Writing

- Experimental study of the mechanism of writing. Il Sci Am S 80:165 S 11 '15
See also Ciphers; Cuneiform writing; In-scriptions

Identification

- Science and the forger; instruments and illustrations in questioned document cases. A. S. Osborn. Il Sci Am 112:434-5 My 8 '15

Wrought Iron

- Brittleness of wrought iron as a consequence of heating compressed material; abstract. R: Baumann. Am Soc M E J 37:605-6 O '15
 Crystallization of wrought iron. Ry R 56:814-15 Je 12 '15
 Properties of Swedish wrought iron. N. Lilienberg. Iron Age 95:788-9 Ap 8 '15

X

X ray photography. See Radiography

X rays

- Application of the Coolidge tube to metallurgical research. W. P. Davey. Il Gen Elec R 18: 134-6 F '15; Same. Iron Age 95:500-1 Mr 4 '15; Same. Sci Am S 79:321 My 22 '15; Same, with description of Coolidge tube. Engineer 119:350-1 Ap 9 '15
 Coolidge X-ray tube. R. Bown. Il plan Elec W 65:896-7 F 13 '15
 Hard X-rays. W. D. Coolidge. J Fr Inst 180: 492-3 O '15
 Ionizing potential of an X-ray tube. E. C. Drew. bibliog Il diag J Fr Inst 179:697-709 Je '15
 Metallic Roentgen-ray tube; abstract. L. Zehnder. diag Elec W 65:605 Mr 6 '15
 Model X-ray dark-room. W. P. Davey. plans Gen Elec R 18:1107-10 D '15
 New hydrogen X-ray tube. H. C. Snook. Il Sci Am S 79:71 Ja 30 '15
 Notes on X-rays. W. S. Andrews. Gen Elec R 18:152 F '15
 Physics of X-rays. W. P. Davey. Gen Elec R 18:258-63, 353-8, 625-30 Ap-May, J1 '15
 Radiography of metals. W. P. Davey. Il Am Inst Min E Bul 104:1515-25 Ag '15; Same. Gen Elec R 18:795-800 Ag '15; Same cond. Iron Age 95:522-4 S 2 '15; Abstract J Fr Inst 180:489-90 O '15
 Recent developments in X-ray tubes. W. D. Coolidge. Gen Elec R 18:224-5 Mr '15; Same. Sci Am S 79:188 Mr 20 '15
 Roentgen tube; abstract. S. Russ. Elec W 65:992 Ap 17 '15
 Roentgenology in war. Il Sci Am S 79:68 Ja 30 '15
 Searching for contraband with X-rays. Il Sci Am 112:338 Ap 10 '15
 X-ray examination of built-up mica. C. N. Moore. Il diag Gen Elec R 18:195-7 Mr '15; Same. Sci Am S 80:253 O 15 '15
 X-ray inspection of a steel casting. W. P. Davey. Il Gen Elec R 18:25-7 F '15; Same. Iron Age 95:186-7 Ja 21 '15; Same. Sci Am S 79:84 F 6 '15; Same. Eng M 49:106-7 Ap '15; Same. Ry Age (Mech ed) 39:170 Ap '15
 X-ray spectrometer for the study of the properties of crystals. diag Sci Am S 79:19 Ja 9 '15
 X-ray work in war. Il Sci Am S 79:120-1 F 20 '15
 X-rays and crystalline structure. Sibley J 29: 103-6 Ja '15; Same. Sci Am S 79:82 F 6 '15
 X-rays and crystalline structure. W: H. Bragg. Sci Am S 79:5-7 Ja 2 '15
See also Cathode rays; Radiography; Radiotherapy

Xylene

- Action of trioxymethylene on *p*-xylene in the presence of aluminum chloride. R. C. Huston and D. T. Ewing. Am Chem Soc J 37: 2394-9, 2401 O '15
 Toly esters and toluides of the nitrosulfonic acids of *p*-xylene. R. C. Huston. Am Chem Soc J 37:2119-22 S '15

Y

Yachts

- Galvanic corrosion damages hull of yacht. Eng N 74:522-3 S 9 '15
 Three-masted auxiliary schooner yacht Sea Call. Il Sci Am 112:623 Je 26 '15

Yale & Towne manufacturing co.

Efficient methods of the Yale & Towne mfg. co. and details of its specially-equipped shop. H. C. Estep. *Il plans Foundry* 43:129-37 Ap '15; Same (Castings for locks and hardware). *Iron Tr R* 56:809-16+. Ap 22 '15

Yale club, N. Y. See New York (city)—Clubs

Yards

How Cleveland fixes sizes of courts and yards. *plan Eng Rec* 71:614 My 15 '15

Yarn

Evenness in the manufacture of cotton yarn. *Textile World* 50:197-8 N '15
German yarn numbering. *Textile World* 48:488-90 F '15
Manufacturing spiral yarn. *Il diag Textile World* 48:311-12 D '14
Numbering of yarn. *Textile World* 48:467-8. F '15
Points on fine yarn manufacture. C. N. Poore. *Textile World* 50:164-5 N '15
Strength of yarn. *Textile World* 48:604-6 Mr '15
Twists for worsted yarn. *Textile World* 48:509-11 F '15
Value of permutized water for processing yarns. A. R. Calvo. *Textile World* 49:243-4+ My '15
Weighting cotton yarn. *Textile World* 50:211-12 N '15

See also Cotton; Silk; Spinning; Textile industry and fabrics; Twine; Wool; Worsted

Yeast

Dried beer-yeast as an article of food. *Sci Am S* 79:311 My 15 '15
Transforming sugar into proteins and fats. H. W. Hillyer. *Sci Am* 113:446+ N 20 '15

Yellow fever

Discoveries of Dr. Charles J. Finlay. *Sci Am* 113:210 S 4 '15

Yellow poplar tree. See Tulip tree

Yellowstone national park

Geology of the Yellowstone national park. C. H. Butman. *Il Sci Am S* 79:7-9 Ja 2 '15

Yonkers, New York

Water supply

Yonkers water supply and its future development. D. F. Fulton. *map Am Water Works Assn J* 2:1-8 Mr '15; Discussion. 2:8-12, 311-13, 579-81 Mr, Je, S '15

Young men's Christian association

Is the railroad Y. M. C. A. really worth while? *Ry Age* 58:295-6, 358-60 F 18-26 '15
Solution of the construction camp club house problem. *Eng & Contr* 44:118 Ag 18 '15

Young women's Christian association buildings

Y. W. C. A. building, Newark, N. J.; views and plans. *Brickb* 24:pl 144-5 O '15

Young women's Hebrew association building, New York

Young women's Hebrew association. *Il Arch & Bldg* 47:21-5 Ja '15

Youth's companion building, Boston, Massachusetts

Features in the construction of new building for the Youth's companion. W. B. Conant. *Il diag Concrete Cem* 7:133-5 O '15
Large saving in steel effected by new system of flat-slab reinforcement. *Il plans Eng Rec* 72:450-2 O 9 '15

Ypres, Belgium

Mergelynck museum at Ypres. *Il Am Inst Arch J* 3:16-18 Ja '15

Architecture

Architect's impressions in Belgium. E. T. Richmond. *Il Am Inst Arch J* 3:153-8 Ap '15
Mediaeval market place of Ypres, an irreparable war loss to architecture. C. A. T. Middleton. *Il diag Arch Rec* 37:289-99 Ap '15

Z**Zeeland (steamship)**

Floating a stranded ship on air. R. G. Skerrett. *Il Sci Am* 112:84 Ja 23 '15

Zeppelins. See Balloons and airships

Zinc

Analysis of spelter; report of subcommittee. *J Ind & Eng Chem* 7:547-9 Je '15; Same. *Eng & Min J* 100:439-40 S 11 '15
Australian zinc contracts. *Eng & Min J* 100:524-5 S 25 '15
Care in melting zinc. R. Job and F. F. White. *Il Iron Age* 96:199 J 22 '15
Determination of spelter coating on sheets and wire. J. A. Aupperle. *Metal Ind n s* 13:223-30 Ag '15; Same. *Iron Age* 96:132 J 15 '15; Same (Maintaining galvanizing standards) *Iron Tr R* 56:1310+ Je 24 '15
Economizing zinc. H. de B. Parsons. *Sci Am S* 80:224 O 2 '15
Ferrocyanide determination of zinc. *Eng & Min J* 99:285-6 F 6 '15
Influence of impurities on zinc. *Eng & Min J* 99:290 Je 5 '15
Kinds of spelter. *Eng & Min J* 99:292-3 F 6 '15
New method for determining zinc in alloys. *Eng & Min J* 99:701 Ap 17 '15
Spelter and its uses. *Metal Ind n s* 13:4 Ja '15
Spelter and other coating metals. *Met & Chem Eng* 13:245 Je '15
Spelter—its manufacture and properties; with discussion. G. C. Stone. *Metal Ind. n s* 13:370-3 S '15
Suggestions about the use of zinc. *Old Scotch. Int Marine Eng* 20:457 O '15
Testing spelter coating in France. C. Coulon. *Iron Tr R* 57:401; Discussion. J. A. Aupperle. 57:401 Ag 26 '15
Zinc-dust precipitation tests. N. Herz. *Am Inst Min E Bul* 104:1507-13 Ag '15; Abstract. *Met & Chem Eng* 13:973-4 D 15 '15
Zinc in the cyanide mill. A. Dorfmann. *Eng & Min J* 100:680 O 23 '15

See also Galvanizing

Zinc castings

Cast zinc. *Foundry* 43:232-3 Je '15

Zinc chloride

Specification for zinc chloride treatment. W. F. Goltra. *Ry Age* 58:459 Mr 12 '15

Zinc industry and trade

Australian zinc industry. *Eng & Min J* 99:704-5 Ap 17 '15
Case of spelter. *Eng & Min J* 100:234 Ag 7 '15
European war and the spelter market. W. S. Horner. *Metal Work* 84:7-8 J 12 '15
Lead and zinc movement. *Eng & Min J* 100:397 S 4 '15
Non-ferrous metals and the war. W. R. Ingalls. *Iron Age* 96:420-1 Ag 19 '15
Production of spelter in 1914. *Eng & Min J* 99:207-8 Ja 23 '15
Situation in spelter. *Eng & Min J* 99:504-5 Mr 13 '15
Spelter market and galvanized steel sheets. W. H. Abbott. *Metal Work* 83:923+ Je 25 '15
Spelter production in 1914. C. E. Siebenthal. *Iron Age* 95:350-1 Ap 15 '15
Spelter statistics for 1914. W. R. Ingalls. *Eng & Min J* 99:451-4 Mr 6 '15
Zinc concentrates in the British prize courts. *Eng & Min J* 100:535 O 16 '15
Zinc corporation and the war. *Eng & Min J* 100:95-7 J 17 '15
Zinc smelting in Great Britain. *Eng & Min J* 100:322-3 Ag 21 '15
Zinc statistics. *Eng & Min J* 99:62-6 Ja 9 '15

Zinc metallurgy

Concentration at the Timber Butte mill. T. Simons. *Met & Chem Eng* 13:188-9 Mr '15
Development of zinc smelting in the United States. G. C. Stone. *Met & Chem Eng* 13:726-7 O 15 '15
Electromagnetic zinc-ore treatment by the Campbell process. L. H. Ives. *Il diag Eng & Min J* 99:379-80 Je 5 '15
Electrometallurgy of zinc. *Eng & Min J* 100:325-6 Ag 21 '15
Flotation of Joplin-Galena slimes. G. Belchic and G. L. Allen. *Met & Chem Eng* 13:847 N 15 '15
French process for electrolytic zinc. *Met & Chem Eng* 13:888 D 1 '15
How spelter is manufactured. G. C. Stone. *Iron Tr R* 56:564-6+ Mr 18 '15
Leaching a zinc-lime ore with acids. O. C. Ralston and A. E. Gartside. *Met & Chem Eng* 13:151-5 Mr '15

Zinc metallurgy—*Continued*

- Main points in the economics of the metallurgy of zinc. W. R. Ingalls. *Met & Chem Eng* 18:725-6 O 15 '15
- Metallurgy of zinc in 1914. W. R. Ingalls. *Eng & Min J* 99:95-6 Ja 9 '15
- Mining and milling of lead and zinc ores in the Wisconsin district, Wisconsin. C. A. Wright. *Il plan U S Bur Mines Tech Pa* 95: 20-33 '15
- New mill of the Daly West mining co., Park City, Utah. L. O. Howard. *Il plan Met & Chem Eng* 18:597-602 S 15 '15
- Points in the economics of zinc metallurgy. W. R. Ingalls. *Eng & Min J* 100:551-4 O 2 '15
- Preventing blue powder in the electric reduction of zinc ores; a patent granted to Woolsey McCa. Johnson. *Met & Chem Eng* 18:763 O 15 '15
- Production of zinc oxide from low-grade carbonate ore at Leadville. *Il Met & Chem Eng* 18:681-3 S 15 '15
- Recent improvements in the metallurgy of zinc. *Eng & Min J* 99:896 My 22 '15
- Reduction of zinc oxide in an electric furnace; patent by F. W. Highfield. *diag Met & Chem Eng* 18:817 N 1 '15
- Refining of zinc waste. L. J. Krom. *Il diags Metal Ind n s* 13:281-3 J 1 '15
- Removal of cadmium from zinc ores. *Eng & Min J* 99:659 Ap 10 '15
- Simmonds' retort-discharging machine. *Il Eng & Min J* 99:449-50 Mr 6 '15
- Smelting of metals in the electric furnace. D. A. Lyon and R. M. Keeney. *U S Bur Mines Bul* 77:91-101 '14
- Status of zinc metallurgy in 1914. *Met & Chem Eng* 18:6 Ja '15
- Treating zinc-bearing materials. *diag Met & Chem Eng* 18:504-5 Ag '15
- Truax zinc-slag treatment. *Eng & Min J* 100: 803 N 13 '15
- Use of salt in zinc smelting. *Eng & Min J* 99:917-18 My 22 '15
- Wisconsin zinc district. H. C. George. *Il diags Eng & Min J* 100:885-8 S 4 '15; Correction. 100:752 N 6 '15
- Zinc extraction by electrolysis. E. H. Leslie. *Eng M* 48:910-12 Mr '15
- Zinc manufacture in the Pittsburgh district; plant of the American zinc & chemical company at Langloeth, Pa. *Il map Iron Age* 95:1064-7 My 18 '15
- Zinc oxide from lead blast furnace slag, as in operation at south Chicago. H. B. Pulsifer. *Il Met & Chem Eng* 18:783-5 N 1 '15
- Zinc smelter at Langloeth. W. R. Ingalls. *diags plan Eng & Min J* 98:985-9 D 5 '14
- Zinc smelting in Great Britain. *Eng & Min J* 100:279 Ag 14 '15
- Zinc mines and mining
- Geological anatomy of a Tennessee zinc mine. F. L. Nason. *diags Eng & Min J* 100:259-62 Ag 14 '15
- Mining and milling of lead and zinc ores in the Wisconsin district, Wisconsin. C. A. Wright. *U S Bur Mines Tech Pa* 95:1-19 '15
- New developments in the Coeur d'Alene, Idaho. H. I. Ellis. *Il Eng & Min J* 100:337-40 Ag 28 '15
- Wisconsin zinc district. H. C. George. *Il diags map Eng & Min J* 100:295-300, 341-4, 385-8 Ag 21-S 4 '15; Correction. 100:752 N 6 '15
- Zinc mining in Wisconsin in 1914. J. E. Kennedy. *Eng & Min J* 99:65-6 Ja 9 '15
- Zinc ores
- Calamine mines of Sardinia. C. W. Wright. *Il map Eng & Min J* 100:625-8 O 16 '15
- Formation of the oxidized ores of zinc from the sulphide. Y. T. Wang. *Il Am Inst Min E Bul* 105:1959-2012 S '15
- Zinc deposits of eastern Tennessee. F. L. Nason. *Eng & Min J* 99:784-6 Ap 24 '15
- Zinc poisoning
- Zinc poisoning. C. H. Fulton. *Eng & Min J* 100:363 Ag 28 '15
- Zinc poisoning. H. W. Gillett. *J Ind & Eng Chem* 7:550 Je '15
- Zirconia
- Zirconia, a new refractory. H. C. Meyer. *Il Met & Chem Eng* 18:791-3; 13:263-6 D '14, Ap '15
- Zollie
- Abandon manufacture of new fuel zollie. Horseless *Age* 34:927 D 30 '14
- Zones of silence. See Sound
- Zoological gardens
- Animal life in a zoo. A. Pope. *Il Sci Am* 112: 385+ Ap 24 '15
- Gardens of the Zoological society of London, its history, organization, and its valuable collections. R. W. Shufeldt. *Il plan Sci Am S* 79:180-1 Mr 20 '15
- Mappin terraces at the Zoo. R. N. Stroyer. *Il diags Engineer* 119:156-7 F 12 '15
- Zoology
- New faunal conditions in the Canal Zone. H. E. Anthony. *Il Sci Am S* 79:104-6 F 13 '15
- See also Reproduction
- South America
- Roosevelt-Rondon scientific expedition. L. E. Miller. *Il Sci Am S* 79:248-9, 268-70 Ap 17-24 '15

